SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1915.

No. 562.

THE UNITED STATES, PLAINTIFF IN ERROR.

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT, AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

INDEX.

	Original.	Print.
Caption	a	a
Transcript of record from the District Court of the United States for the Eastern District of Tennessee	1	1
Libel	1	1
Information	1	1
Attachment and monition	4	4
Answer	5	5
Bond and claim	7	7
Stipulation	8	8
Demand for jury	9	9
Order allowing demand for jury	9	9
Motion to amend libel	9	9
Amended libel	10	10
Order allowing libel amended	12	12
Motion to withdraw one keg Coca Cola	13	13
Order allowing amended information filed	13	13
Exceptions to amended information	13	13
Order sustaining exceptions	15	15
Amendments to information or libel	16	16
Exceptions to amendments	17	17
Amended information	19	19
Order sustaining exceptions	20	20
Answer to amended information	21	21
Memorandum opinion continuing action on motion for new trial	22	22
Order of continuance	23	23
Petition for libellant	23	23

Transcript of record from the District Court of the United States for the Eastern District of Tennessee—Continued.	Original.	Print.
Order allowing amended information	24	24
Petition of libellant	30	30
Motion of respondent for commission to take deposition	32	32
Order appointing commissioner to take depositions	33	33
Stipulation of counsel	33	33
Memorandum opinion directing new panel of jurors	33	33
Order that new jury be drawn	34	34
Respite	35	35
Respite	36	36
Respite	37	37
Respite	38	38
Respite	39	39
Action of court on motion for peremptory instructions	40	40
Motion for new trial	41	41
Order continuing	44	44
Memo. opinion overruling motion for new trial	44	44
Order overruling motion for new trial	46	46
Order extending time for bill of exceptions	46	46
Bill of exceptions	47	47
Issues of fact tendered by defendant	47	47
Issues of fact tendered by libellant	48	48
Trial	49	49
Examination of jury, etc	50	50
Information read	61	61
Testimony of W. J. Dobbs	69	69
J. L. Lynch	75	75
H. C. Fuller	127	127
W. O. Emery	167	167
Henry H. Rusby	170	170
E. A. Ruddiman	201	201
F. P. Morgan	207	207
J. W. Hoover	255	255
H. C. Fuller (recalled)	258	258
H. H. Rusby (recalled)	261	261
L. F. Kebler	262	262
John Witherspoon	333	333
T. J. Searcy	348	348
L. F. Kebler (recalled)	356	356
Louis LeRoy	371	371
George R. Stuart	381	381
Hugo DuBois	383	383
Edwin B. Corry	385	385
William F. Boos	395	395
J. R. Musser	453	453
O. T. Osborne	477	477
S. S. Cohen	505	505
Maurice V. Tyrode	525	525
F. P. Morgan (recalled)	553	553
Robert J. Formad	557	557
B. A. Gallagher	583	583
Worth Hale	587	587
William Salant	610	610

Transcript of record from the District Court of the United States for the Eastern District of Tennessee—Continued.

Bill of exceptions—Continued.	Original.	Print.
Testimony of B. A. Gallagher (recalled)	631	631
F. P. Morgan (recalled)	632	632
H. C. Fuller (recalled)	634	634
Albert P. Matthews	652	652
J. W. McQuillen	679	679
J. F. Shephard	692	692
S. R. Barnes	694	694
Worth Hale (recalled)	699	699
L. F. Kebler (recalled)	704	704
W. F. Boos (recalled)	706	706
R. T. Wright	708	708
W. J. Dobbs (recalled)	710	710
John S. Candler	712	712
Chas. H. Candler	742	742
G. L. Mitchell	782	782
L. Schaeffer	787	787
John W. Mallet	812	812
Exhibit 1.—Exhibits and decision of the examiner of interferences, December 15, 1892, in the matter of Interference No. 15,753. The Cocoa-Cola Company vs. Kent	814	814
Chas. E. Caspari	878	878
Thomas G. Morris	897	897
A. S. Clouting	901	901
Henry A. Newbold	905	905
R. C. Kell	908	908
Victor C. Vaughan	915	915
L. Schaeffer	970	970
John M. McCandlass	978	978
J. A. Wesener	987	987
Robert L. Emerson	1041	1041
John F. Queeny	1062	1062
Rudolph Witthaus	1066	1066
H. C. Wood, jr	1085	1085
H. L. Hollingsworth	1096	1096
J. A. Wesener (recalled)	1120	1120
John Marshall	1128	1128
Chas. F. Chandler	1137	1137
Mrs. E. M. Stevens	1143	1143
Mary Ciombro	1148	1148
John Mangold	1153	1153
Paul Eisermann	1155	1155
Peter Picchi	1158	1158
Giovan Batista Di Palma	1161	1161
Cuono Nuzzo	1163	1163
Mike La Ventura	1166	1166
Pasquali Di Orio	1168	1168
Jim Di Orio	1169	1169
Warren H. Hunter	1170	1170

Transcript of record from the District Court of the United States for the Eastern District of Tennessee—Continued.

	Original.	Print.
Bill of exceptions—Continued.		
Testimony of Mrs. Susan Cummings	1178	1178
E. R. Le Count	1183	1183
John Marshall (recalled)	1195	1195
Ludwig Hektoen	1197	1197
Rudolph Witthaus (recalled)	1204	1204
Reynold W. Wilcox (recalled)	1221	1221
Thomas E. Satterthwaite	1222	1222
Harold N. Moyer	1229	1229
Thomas E. Satterthwaite (recalled)	1233	1233
Harold N. Moyer (recalled)	1234	1234
Allen McLean Hamilton	1248	1248
Stewart Roberts	1257	1257
J. E. Baullin	1272	1272
E. Bates Block	1274	1274
Stewart Roberts (recalled)	1277	1277
T. V. Hubbard	1277	1277
B. B. Weisberg	1280	1280
R. T. Morrison	1282	1282
H. C. Heinze	1284	1284
Robert J. Guinn	1286	1286
B. J. King	1290	1290
Samuel F. Bozkin	1292	1292
Wm. Pratt Heath	1295	1295
Melville W. Hubbard	1298	1298
Carlos Lyens	1300	1300
Henry Sanders Rowland	1302	1302
Edward Emmett Dougherty	1305	1305
Wm. Henry Reynolds	1308	1308
Robt. Irving Gresham	1310	1310
Stipulation of counsel	1312	1312
Louis Schaeffer (recalled)	1314	1314
John William Mallet (recalled)	1323	1323
J. A. Wesener (recalled)	1337	1337
Hobart Amory Hare	1342	1342
Walter S. Haines	1384	1384
E. R. Le Count (recalled)	1390	1390
Samuel P. Sadtler	1392	1392
Chas. H. Reckefus	1406	1406
F. K. Boland	1406	1406
Raymond Wallace	1408	1408
Samuel P. Sadtler (recalled)	1413	1413
C. J. Gooding	1414	1414
B. H. Brown	1440	1440
C. Holtzclaw	1449	1449
J. W. Johnson	1454	1454
B. S. Wert	1456	1456
E. Dunbar Newell	1458	1458
E. E. Reisman	1460	1460
Hobart A. Hare (recalled)	1461	1461
T. P. Shepard	1464	1464
John J. Mahoney	1466	1466

Transcript of record from the District Court of the United States for the Eastern District of Tennessee—Continued.

		Original.	Print.
Bill of exceptions—Continued.			
Testimony of	J. W. Glass	1467	1467
	Fred J. Paxon	1468	1468
	Geo. C. Walters	1469	1469
	J. W. Hardwick	1472	1472
	Alfred C. Newell	1473	1473
	G. A. Harbour	1474	1474
	E. C. Brown	1476	1476
	Edgar Dunlap	1477	1477
	C. A. Reuschenberg	1478	1478
	John H. Crawford	1479	1479
	L. J. Rich	1480	1480
	R. M. Watkins	1481	1481
	Will F. Worley	1483	1483
	Louis L. Harrison	1484	1484
	J. W. Evans	1486	1486
	Emil Wassman	1487	1487
	D. A. Rosenthal	1490	1490
	A. B. Tadlock	1496	1496
	H. B. Branner	1504	1504
	D. M. Chambliss	1507	1507
	J. P. Regan	1515	1515
	E. J. Schott	1518	1518
	Benson Rippetoe	1535	1535
	J. R. Tague	1581	1581
	E. C. Brown (recalled)	1592	1592
	Fred Shepherd	1593	1593
	E. E. Kerr	1595	1595
	Theodore Lassley	1596	1596
	McKinley Hayes	1597	1597
	J. E. Neville	1598	1598
	Zack H. Taylor	1600	1600
	M. E. Turner	1600	1600
	Chess Lagonarsino	1601	1601
	J. W. Mallett (recalled)	1603	1603
	S. P. Sadtler (recalled)	1605	1605
	C. E. Caspari (recalled)	1611	1611
	W. H. Foster	1617	1617
	J. F. Johnson (recalled)	1618	1618
	C. Howard Candler (recalled)	1623	1623
	John S. Candler (recalled)	1623	1623
	S. R. Roberts (recalled)	1626	1626
	Robert J. Formad (recalled)	1629	1629
	Dr. William Salant (recalled)	1636	1636
	Dr. B. S. Wert (recalled)	1652	1652
	Dr. Charles A. Crampton	1653	1653
	W. B. Reeves	1672	1672
	R. K. Smith	1677	1677
	Cross-interrogatories on deposition of Dr. Oswald Schmiederberg	1681	1681
	Proposed issues of libellant	1685	1685
	C. Howard Candler (recalled)	1688	1688

Transcript of record from the District Court of the United States for the Eastern District of Tennessee—Continued.

	Original.	Print.
Bill of exceptions—Continued.		
Testimony of John S. Candler (recalled)	1688	1688
J. L. Lynch (recalled)	1707	1707
Dr. L. F. Kebler (recalled)	1713	1713
L. F. Kebler (recalled)	1726	1726
Dr. William F. Boos (recalled)	1731	1731
Opinion concerning the caffeine contained in Coca-Cola as regards its effects upon health (by Dr. Oswald Schmiedeberg)	1747	1747
Testimony of Dr. William F. Boos (recalled)	1762	1762
V. K. Chessnutt	1767	1767
Dr. H. C. Fuller (recalled)	1771	1771
Dr. W. F. Boos (recalled)	1789	1789
Dr. H. C. Fuller (recalled)	1793	1793
Wr. W. O. Emory (recalled)	1793	1793
Theodore Basche	1797	1797
Dr. L. F. Kebler (recalled)	1801	1801
Dr. H. C. Hunter (recalled)	1805	1805
Dr. W. O. Emory (recalled)	1807	1807
Dr. Ludwig Hektoen (recalled)	1809	1809
Motion for peremptory instructions	1812	1812
Argument on motion for peremptory instructions continued	1843	1843
Court's action in directing verdict	1894	1894
Motion for a new trial	1903	1903
Memorandum opinion on motion for a new trial	1907	1907
Petition for a writ of error	1909	1909
Assignment of errors	1909	1909
Order allowing writ of error	1914	1914
Writ of error	1914	1914
Citation and service	1915	1915
Assignment of error	1915	1915
Order allowing appeal	1919	1919
Citation and service on appeal	1920	1920
Orders extending time, etc	1920	1920
Petition to advance	1922	1923
Telegram attached to petition	1925	1924
Order of submission of motion to advance	1926	1925
Order advancing cause	1926	1925
Order of argument	1927	1925
Judgment	1927	1926
Opinion, Denison, J	1929	1926
Petition for a writ of error	1939	1934
Order granting petition for a writ of error	1940	1934
Assignment of errors	1941	1935
Writ of error	1946	1937
Clerk's return to writ of error	1947	1938
Clerk's certificate	1949	1938
Citation and service	1950	1938
Affidavit as to amount in controversy	1951	1939

(Stamped:) Office of the clerk. Received Jul. 15, 1915. Supreme Court U. S.

No. 2415.

United States Circuit Court of Appeals for the Sixth Circuit.

THE UNITED STATES, appellant,

vs.

FORTY BARRELS AND TWENTY KEGS COCA-COLA, appellee.

From the District Court of the United States, Southern Division, Eastern District of Tennessee.

Certified record.

JAMES B. COX,
United States District Attorney, Knoxville, Tenn.,
W. B. MILLER,
Special Assistant United States Attorney, Chattanooga, Tenn.,
For Appellant.

J. B. SIZER, *Chattanooga, Tenn.*
HAROLD HIRSCH, *Atlanta, Ga.*
For Appellee.

(Stamped:) Filed Nov. 29, 1912. Frank O. Loveland, clerk.

INDEX

Libel 1
Information 1
Attachment and Monition 4
Answer 5
Bond and Claim 7
Stipulation 8
Demand for Jury 9
Order Allowing Demand for Jury 9
Motion to Amend Libel 9
Amended Libel 10
Order Allowing Libel Amended 12
Motion to Withdraw One Keg Coca-Cola 13
Order Allowing Amended Information Filed 13
Exceptions to Amended Information 13
Order Sustaining Exceptions 15
Amendments to Information or Libel 16
Exceptions to Amendments 17
Amended Information 19
Order Sustaining Exceptions 20
Answer to Amended Information 21
Memo. Opinion Continuing Action on Motion for New Trial 22
Order of Continuance 23
Petition for Libellant 23
Order Allowing Amended Information 24
Petition of Libellant 30
Motion of Respondent for Commission to Take Deposition 32
Order Appointing Commissioner to Take Depositions 33
Stipulation of Counsel 33
Memo. Opinion Directing New Panel of Jurors 33
Order That New Jury be Drawn 34
Respite 35
Respite 36
Respite 37
Respite 38
Respite 39
Action of Court on Motion for Peremptory Instructions 40
Motion for New Trial 41

Order Continuing		44
Memo. Opinion Overruling Motion for New Trial		44
Order Overruling Motion for New Trial		46
Order Extending Time for Bill of Exceptions		46
Bill of Exceptions		47
Issues of Fact Tendered by Defendant		47
Issues of Fact Tendered by Libellant		48
Testimony		49
Jury		50
W. J. Dobbs	Witness	69
J. L. Lynch	"	75
H. C. Fuller	"	127
W. O. Emery	"	167
Henry H. Rusby	"	170
E. A. Ruddiman	"	201
F. P. Morgan	"	207
J. W. Hoover	"	255
H. C. Fuller, recalled	"	258
H. H. Rusby, recalled	"	261
L. F. Kebler	"	262
John Witherspoon	"	333
T. J. Searcy	"	348
L. F. Kebler, recalled	"	356
Louis LeRoy	"	371
George R. Stuart	"	381
Hugo DuBois	"	383
Edwin B. Corry	Deposition	385
William F. Boos	Witness	395
J. R. Musser	"	453
O. T. Osborne	"	477

BE IT REMEMBERED, THAT AT A DISTRICT COURT OF THE UNITED STATES, HELD FOR THE SOUTHERN DIVISION OF THE EASTERN DISTRICT OF TENNESSEE, AT THE COURT ROOMS IN THE CITY OF CHATTANOOGA, WITHIN SAID DISTRICT AND THE SIXTH CIRCUIT, ON THE FOURTH MONDAY, IT BEING THE 27TH DAY OF MAY, A. D. 1912.

PRESENT AND PRESIDING, THE HONORABLE EDWARD T. SANFORD, DISTRICT JUDGE.

LIBEL.

IN THE DISTRICT COURT OF THE UNITED STATES OF AMERICA, EASTERN DISTRICT OF TENNESSEE, SOUTHERN DIVISION.

INFORMATION.

Be it remembered, that James R. Penland, United States Attorney for the Eastern District of Tennessee, who for the said United States in this behalf prosecutes, on this 21st day of October, 1909, gives the Court to understand and be informed, that on the 18th day of October, 1909, the Coca Cola Company, of Atlanta, Georgia, an incorporation doing business among the several states, and particularly in the States of Georgia, and Tennessee, with an office in the City of Atlanta in the State of Georgia shipped in car No. 64784 via the Western and Atlantic Railroad, to the Coca Cola Bottling Works, of Chattanooga, Tenn., a consignment of 40 bbls. and 20 kegs of a product, each labeled, "Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30, 1906. Our serial No. is 3324. The Coca Cola Company, by Asa G. Candler, Pt."

Said shipment was an interstate shipment, and received by said consignee on ——— of October, 1909, in the City of Chattanooga, Tennessee, where the same now is and remains in unbroken packages in the possession of Coca Cola Bottling Works.

Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of law, and contains an added ingredient, Caffeine, which is a deleterious ingredient and may render said food product injurious to health. The caffeine in this food product is derived from waste tea leaves and not from the Cola nut, as the name would indicate, and this food product is therefore adulterated under paragraph 5, section 7, of the Food and Drugs Act of June 30, 1906.

Second. The said product does not contain the chief active principle of cola, as the name would indicate, but an extract prepared from exhausted coca leaves, a refuse product obtained in the manufacture of cocaine. Said food product is therefore misbranded under section 8 of said Food and Drugs Act of June 30, 1906, because the package containing it and its label bears a statement which is false and misleading, contrary to the statute in such case made and provided, and against the peace and dignity of the United States.

In consideration of the foregoing premises, said United States Attorney who prosecutes as aforesaid, alleges that the said food product was manufactured, branded and shipped in violation of the laws of the United States, and renders said 40 barrels and 20 kegs, containing said product as aforesaid, subject to be seized and dealt with as the law directs; and he therefore prays that due process of law may be awarded in this behalf, to authorize and enforce said seizure, and the forfeiture of said property to the United States, and to give notice to all persons connected, to appear on the return day of such process and show cause, if any, why such forfeiture should not be adjudged.

The further prayer is, that all necessary orders of procedure, and so forth, be made in the case, and for general relief.

JAMES R. PENLAND, U. S. Attorney.

James R. Penland makes oath and says, that the foregoing information is filed by the request of the Secretary of Agriculture, and on information furnished by him, the said Secretary of Agriculture, and on other facts furnished by the United States officials, which he believes to be true.

JAMES R. PENLAND.

Subscribed and sworn to before me this October 21st, 1909.

HORACE VANDEVENTER,
U. S. Dist. Clerk.

Endorsed. Filed Oct. 21, 1909. (Copy.)

INFORMATION.

Be it remembered, that James R. Penland, United States Attorney for the Eastern District of Tennessee, who for the said United States in this behalf prosecutes, on this the 21st day of October, 1909, gives the Court to understand and be informed, that on the 18th day of October, 1909, the Coca Cola Company, of Atlanta, Georgia, an incorporation doing business among the several states, and particularly in the States of Georgia and Tennessee, with an office in the City of Atlanta, in the State of Georgia, shipped from said City of Atlanta, in said State of Georgia, in car No. 64784, via Western & Atlantic Railroad, to the Coca Cola Bottling Works, of Chattanooga, Tennessee, a consignment of forty barrels and twenty kegs of a product each labeled, "Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30th, 1906. Our serial No. is 3324. The Coca Cola Company, by Asa G. Candler, Pt."

Said shipment was an interstate shipment, and received by said consignee on 20th of October, 1909, in the City of Chattanooga, Tennessee, where the same now is and remains in unbroken packages in the possession of the Coca Cola Bottling Works at Chattanooga, Tennessee.

Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of the law, and contains an added ingredient, caffeine, which is a deleterious ingredient and renders said food product injurious to health.

The caffeine in this food product is derived from waste tea leaves, and not from the cola nut, as the name would indicate, and this food product is therefore adulterated under paragraph 5, section 7 of the Food and Drugs Act of June 30, 1906.

Second. The said food product does not contain the chief active principle of coca, as the name would indicate, but an extract prepared from exhausted coca leaves, a refuse product obtained in the manufacture of cocaine.

Said food product is therefore misbranded under section 8 of said Food and Drugs Act of June 30th, 1906, because the package containing it and its label bears a statement which is false and misleading, contrary to the form of the statute in such case made and provided and against the peace and dignity of the United States.

In consideration of the foregoing premises, said United States Attorney, who prosecutes as aforesaid, alleges that

the said food product was manufactured, branded and shipped in violation of the laws of the United States and renders said forty barrels and twenty kegs, containing said product as aforesaid, subject to be seized and dealt with as the law directs, and he therefore prays that due process of the law may be awarded in this behalf to authorize and enforce said seizure, and the forfeiture of said property to the United States, and to give notice to all persons connected, to appear on the return day of such process, and show cause, if any, why such forfeiture should not be adjudged.

The further prayer is that all necessary orders of procedure and so forth, be made in the case, and for general relief.

JAMES R. PENLAND, U. S. Attorney.

James R. Penland makes oath and says that the foregoing information is filed by the request of the Secretary of Agriculture, and on information furnished by him, the said Secretary of Agriculture, and on other facts furnished by United States officials, which he believes to be true.

JAMES R. PENLAND.

Subscribed and sworn to before me this October 21, 1909.

HORACE VANDEVENTER,
U. S. Clerk, E. D. T.

Endorsed. Filed, October 21, 1909, by Horace VanDeventer, Clerk.

ATTACHMENT AND MONITION.

To the President of the United States of America. To the Marshal of the Eastern District of Tennessee, Greeting:—

Whereas, A libel of information has been filed in the District Court of the United States for the Eastern District of Tennessee, at Chattanooga, Tennessee, on the 21st day of October, 1909, by James R. Penland, United States Attorney for said District on behalf of the United States against forty barrels and twenty kegs of Coca Cola described in said libel and now in the possession of the Coca Cola Bottling Works of Chattanooga, Tennessee, for reasons and causes in said information mentioned and praying the usual process and monition of the said Court in that behalf to be made, and that all persons having or pretending to have any right, title or interest therein may be cited to appear and answer all the matters in the said information set forth and that this court would be pleased to pronounce for the forfeiture and condemnation of said property;

You are therefore commanded to attach the said prop-

erty and to detain the same in your custody until further order of this Court; and to give notice by publication in the Chattanooga Times, Chattanooga, Tennessee, for fourteen days previous to the day of trial, and by notice posted in the most public manner for fourteen days at or near the place of trial of such seizure or information to all persons claiming the said property, or knowing or having anything to say why this Court should not pronounce against the same, according to the prayer of the said information and that they be and appear before the said Court to be holden in and for said Eastern District of Tennessee, at the United States Court house in the City of Chattanooga, in the said District on the 4th Monday in November 1909, and then and there to interpose a claim to the same and to make their allegations in that behalf.

And of what you have done in the premises do you then and there make return, together with this writ.

Witness, the Honorable Edward T. Sanford, Judge of the said Court, and the seal thereof, this the 21st day of October in the year of our Lord, 1909, and of the Independence of the said United States the 134th year.

HORACE VANDEVENTER,
Clerk U. S. District Court.

(Seal).

Came to hand October 22d, 1909, at Chattanooga, Tenn., and executed as commanded on same day as follows:

First, I found and levied the within attachment on the 19 barrels of the Coca Cola being a part of the same mentioned in the said attachment and information located in Coca Cola Bottling Works building of Chattanooga, Tennessee, on Chestnut street.

Second, I found and levied said attachment on 18 barrels of said Coca Cola and on 20 kegs of same, as mentioned and described in said attachment and information located in the warehouse of Trigg-Dobbs & Co., on Broad and Seventh streets, Chattanooga, Tennessee, and took the same into my possession, this October 22, 1909.

P. W. EVANS, U. S. Dep. Marshal.

(Endorsed). Filed, October 22nd, 1909.
By R. M. WATKINS, Dep. Clerk.

ANSWER.

The answer of the Coca Cola Company, owner of the property seized and attached in the above entitled cause, to the information filed herein.

First. Respondent admits that it is a corporation as alleged in the information, and that it made the shipment of forty barrels and twenty kegs of the food product re-

ferred to in the information, substantially as alleged therein. It is admitted that the barrels and kegs containing said food product were labeled as alleged in the information. It is admitted that said shipment was an interstate shipment; that it was received by the consignee in Chattanooga, Tennessee, on or about the date stated in the information; and that it remained in unbroken packages in the possession of the consignee until seized by the Marshal under the attachment issued in this cause.

It is admitted that the product contained in said barrels and kegs is a food product, but it is denied that said shipment was made in violation of law. Said product is a mixture or compound, and it is admitted that one of the ingredients contained in it is a small proportion of caffeine; but the same is not an added ingredient but is one of the essential constituents of the mixture or compound aforesaid. It is denied that caffeine, as used and contained in said product, is a deleterious ingredient or that it renders said product injurious to health. It is denied that the caffeine in said product is derived from waste tea leaves. Respondent is advised, however, that inasmuch as the caffeine contained in said product is not an added ingredient, but an essential constituent, its presence does not constitute an adulteration of the product under paragraph 5 of section 7 of the Food and Drugs Act of June 30th, 1906, as alleged in the information, and that the source from which the caffeine was obtained, and the question whether it is a deleterious ingredient or renders the food product injurious to health, are wholly immaterial.

Respondent denies that the name of said product indicates that the caffeine contained in it was derived from the cola nut.

Second. In answer to the paragraph or count of the information, respondent admits that said product does not contain the chief active principle of coca leaves, and it is denied that the name indicates, or is intended to indicate, that the product contains said principle. The fact is that the name of said product, as contained on the labels aforesaid, is a reproduction, or fac-simile of the registered trade mark under which said product has been made and sold for over twenty years; that said product is a mixture or compound, as hereinbefore stated, and is and has been for more than twenty years widely and generally known under the name aforesaid, which is its own distinctive name, and is an arbitrary and fanciful name, which clearly distinguishes said food product mixture or compound; and said name is not, and is not intended to be, descriptive of the composition of the food product; that said name is accom-

panied, on the labels used by respondent, with a statement of the places where said article is manufactured or produced; and it is denied that the package containing said product, or its label, bears any false or misleading statement, or that said product is misbranded under section 8 of said Food and Drugs Act, as alleged in the information. A true copy of the trade-mark under which said product is and has been made and sold as aforesaid is here shown to the Court marked Exhibit "A" to this answer and made a part hereof. It is denied that said product contains "an extract prepared from exhausted coca leaves, a refuse product obtained in the manufacture of cocaine," as alleged in the information, and it is denied that the allegation is material.

And respondent now avers that all the matters hereinbefore averred are true. Wherefore, respondent prays that the information be dismissed with costs.

The respondent demands a jury to try all issues of fact arising in this cause.

THE COCA COLA CO.
Asa G. Candler, President.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER, Attys. for Respondent.

The United States of America, }
Northern District of Georgia. }

Asa G. Candler, being duly sworn, deposes and says that he is the president of the Coca Cola Company, the within named respondent; that he has read the foregoing answer and knows the contents thereof; and that the statements in said answer are true to his own knowledge, except as to those matters and things stated as on information and belief, and as to those matters and things he believes them to be true.

Subscribed and sworn to before me this 20th day of November, 1909.

ASA G. CANDLER.
R. L. D. McALLISTER,
Notary Public, Fulton County, Ga.
(Seal) Commission expires Oct. 29, 1913.
(Endorsed). Answer. Filed Nov. 22nd, 1909.
R. M. WATKINS, Dep. Clerk.

BOND AND CLAIM.

Now comes Asa G. Candler and respectfully states and represents that he is the president of the Coca Cola Co., a corporation chartered and existing under and by virtue of the laws of the State of Georgia; that said corporation is the sole owner of the property above described which was

seized and attached by the Marshal under the process of this Court in the proceedings aforesaid, and that no other corporation is the owner of the same. And the said Asa G. Candler, as such president, claims the said property on behalf of the said corporation, and prays that the same be restored and that the said corporation may be permitted to defend this proceeding.

ASA G. CANDLER,
For the Coca Cola Co.

Northern District of Georgia,
County of Fulton, State of Georgia.

Asa G. Candler, being duly sworn, deposes and says that the statements made in the foregoing claim subscribed by him are true.

ASA G. CANDLER.

Sworn to and subscribed before me this 18th day of November, 1909.

R. L. D. McALLISTER,
(Seal). Notary Public, Fulton County, Ga.
Commission expires Oct. 29th, 1913.

STIPULATION ENTERED INTO PURSUANT TO THE RULES AND PRACTICE OF SAID COURT.

Whereas, an information was filed in said Court on the —— day of October, 1909, by James R. Penland, United States District Attorney, on behalf of the United States, against forty barrels and twenty kegs of Coca Cola, for the reasons and causes mentioned in said information, and said property has been seized and attached under process of this Court;

And whereas also a claim has been filed for said property by and on behalf of the Coca Cola Company;

Now, therefore, it is hereby stipulated and agreed for the benefit of whom it may concern, that the stipulators undersigned shall be, and each of them is hereby, bound in the sum of two hundred and fifty dollars, conditioned that the claimant above named shall pay all costs and expenses which shall be awarded against it by the final decree of this Court, or upon an appeal, by the appellate Court.

THE COCA COLA COMPANY.
By Asa G. Candler.
J. F. Johnston.
B. F. Thomas.

J. F. Johnston and B. F. Thomas, parties to the above stipulation, being duly sworn, do depose and say that they reside in the Southern Division of the Eastern District of Tennessee, and each that he is worth the sum of five hun-

dred dollars over and above all his just debts and liabilities.

Sworn to and subscribed before me this 23rd day of November, 1909.

R. M. WATKINS, Dep. Clerk.

(Endorsed). Filed November 22nd, 1909.

R. M. WATKINS, D. C.

DEMAND FOR JURY.

Comes the Coca Cola Company into open Court and having filed its claim to the property attached and its answer to the information in the above styled cause, demands a jury to try the following issues of the fact arising upon the information and answer, to-wit:

1. Is the caffeine contained in the food product mentioned in the information an added ingredient?

2. Is the caffeine contained in said food product a deleterious substance which may render said product injurious to health?

3. Is the caffeine contained in said product derived from waste tea leaves?

4. Does the package containing said product or the label thereon bear any statement which is false or misleading within the inhibition of section 8 of the Food and Drugs Act of June 30, 1906?

5. Does said product contain an extract prepared from exhausted coca leaves?

PRITCHARD & SIZER,
Attorneys for Respondent.

(Endorsed). Demand for jury. Filed November 22nd, 1909,

By HORACE VAN DEVENTER, Clerk, Etc.

ORDER ALLOWING DEMAND FOR JURY BY COCA COLA COMPANY.

In this cause the Coca Cola Company having filed its claim to the property attached and its answer to the information, presented in open Court and in the presence of the United States District Attorney its written demand for a jury to try certain issues of fact specified in said demand; which demand is ordered filed and made a part of the record in the cause.

(Endorsed). Filed November 22nd, 1909.

By HORACE VANDEVENTER, Clerk, Etc.

MOTION TO AMEND LIBEL.

Comes the plaintiff, by James R. Penland, United States Attorney, and moves the Court for permission to file an

amended libel herein, embodying the following amendments to the original libel:

I.

By striking out the last paragraph in count one and inserting instead thereof the following:

"Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of the Food and Drugs Act of June 30, 1906, in this:

1. The substance coca has been wholly substituted by another product.

2. The substance coca has been wholly, or in part, substituted by caffeine and caramel.

3. Said product contains an added ingredient, caffeine, which is a deleterious ingredient and renders said food product injurious to health. The caffeine in said food product is derived from waste tea leaves and not from the cola nuts, as the name would indicate. In consequence of the facts stated in the foregoing paragraphs, 1-3 inclusive, said food is adulterated in violation of said statute."

II.

By striking out count two and inserting thereof the following:

1. "The word coca used in said label as part of the name of the product Coca Cola leads one to believe that the article contains the active medicinal agents of coca leaves, one of which is cocaine, when, as a matter of fact, the product coca cola does not contain any coca, and said label is therefore misleading.

2. The word or name cola used in said label as part of the name of the product, Coca Cola, leads one to believe that said product contains cola, whereas, it contains no cola, the caffeine present being added as caffeine and not derived from the cola.

3. Said label on said barrels and kegs bears a pictorial design of the cola leaves and nuts, and thus suggests the presence of cola in said product, which is misleading for the reason that said product contains no cola.

In consequence of the facts stated in the foregoing paragraphs 1-3 inclusive, said food product is misbranded in violation of said statute.

(Endorsed). Filed November 27th, 1909.

By HORACE VANDEVENTER, Clerk U. S. D. C.

AMENDED LIBEL.

Be it remembered that James R. Penland, United States Attorney for the Eastern District of Tennessee, who for the said United States in this behalf prosecutes, on this

27th day of November, 1909, gives the Court to understand and be informed, that on the 18th day of October, 1909, the Coca Cola Company, of Atlanta, Georgia, an incorporation doing business among the several States, and particularly in the States of Georgia and Tennessee, with an office in the city of Atlanta, in the State of Georgia, in car No. 64784 via the Western & Atlantic Railroad to the Coca Cola Bottling Works, of Chattanooga, Tennessee, a consignment of forty barrels and twenty kegs of a product, each labeled "Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30, 1906. Our serial number is 3324. The Coca Cola Company, by Asa G. Candler, Pt."

Said shipment was an interstate shipment, and received by said consignee on the — day of October, 1909, in the City of Chattanooga, Tennessee, where the same now is and remains in unbroken packages in the possession of the Coca Cola Bottling Works.

Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of the Food and Drugs Act of June 30, 1906, in this:

1. The substance coca has been wholly substituted by another product.

2. The substance cola has been wholly or in part substituted by caffeine and caramel.

3. The product contains an added ingredient, caffeine, which is a deleterious ingredient, and may render, and does render, said food product injurious to health.

The caffeine in said food product is derived from waste tea leaves and not from the cola nuts, as the name would indicate.

In consequence of the facts stated in the foregoing paragraphs, 1-3 inclusive, said food is adulterated in violation of said statute.

II.

1. The word coca used in said label as part of the name of the product coca cola leads one to believe that the article contains the active medicinal agents of coca leaves, one of which is cocaine, when, as a matter of fact, the product coca cola does not contain any coca, and said label is therefore misleading.

2. The word or name Cola used in said label as part of the name of the product Coca Cola leads one to believe that said product contains Cola, whereas it contains no cola, the

caffeine present being added as caffeine and not derived from the cola.

3. Said label on said barrels and kegs bears a pictorial design of the cola leaves and nuts, and thus suggests the presence of cola in said product, which is misleading for the reason that said product contains no cola.

In consequence of the facts stated in the foregoing paragraphs, 1-3 inclusive, said food product is misbranded in violation of said statute.

Said adulteration and misbranding is contrary to the statute in such case made and provided, and against the peace and dignity of the United States.

In consideration of the premises, said United States Attorney, who prosecutes as aforesaid, alleges that the said food product was manufactured, branded and shipped in violation of the laws of the United States, and renders said forty barrels and twenty kegs, containing said product as aforesaid, subject to be seized and dealt with as the law directs; and he therefore prays that due process of law may be awarded in this behalf, to authorize and enforce said seizure, and the forfeiture of said property to the United States, and to give notice to all persons connected to appear on the return day of such process and show cause, if any, why such forfeiture should not be adjudged.

The further prayer is, that all necessary orders of procedure, and so forth, be made in the case, and for general relief.

JAMES R. PENLAND,
United States Attorney.

James R. Penland makes oath and says that the foregoing information is filed by the request of the Secretary of Agriculture, and on information furnished by him, the said Secretary of Agriculture, and on other facts furnished United States officials, which he believes to be true.

JAMES R. PENLAND.

Subscribed and sworn to before me this November 27th,
Clerk U. S. District Court.

(Endorsed). Filed November 27th, 1909.
HORACE VANDEVENTER, Clerk U. S. D. C.

ORDER.

In the above styled cause, the Court is pleased to allow plaintiff's motion to amend the information herein, and it is ordered that plaintiff be permitted to file said amended information, and that claimant be allowed thirty days in which to answer said amended information.

1909. HORACE VANDEVENTER,

(Endorsed). Order. Filed November 27th, 1909.
HORACE VANDEVENTER, Clerk U. S. D. C.

MOTION TO WITHDRAW ONE KEG COCA COLA FOR INSPECTION AND EXAMINATION.

In this cause comes the plaintiff, by James R. Penland, United States Attorney, and moves the Court for permission to withdraw from the custody of the United States Marshal one keg of Coca Cola involved in this case for the purpose of having same inspected and analyzed by the Secretary of Agriculture.

(Endorsed). Motion to withdraw one keg Coca Cola for inspection and examination. Filed Nov. 27, 1909.

By R. M. WATKINS, Dep. Clerk.

ORDER ALLOWING AMENDED INFORMATION FILED, ETC.

In this cause the plaintiff asked leave to file an amended information, which was granted, and said amendment was filed accordingly, but subject to the right of the claimant, the Coca Cola Company, to make any legal defense to said amendment, and the claimant is allowed thirty days from this date in which to make defense to said amendment except objections to the right to make the amendment. The plaintiff also made application for leave to take one of the kegs of the product seized in the cause to the City of Washington, for examination and analysis, which application is granted.

The order made in this cause on Saturday, November 27th, is hereby rescinded and set aside.

Enter: SANFORD, J.

(Endorsed). Filed November 29th, 1909.

R. M. WATKINS, Dep. Clerk.

EXCEPTIONS TO AMENDED INFORMATION.

The Coca Cola Company, owner and claimant of the property seized in the above entitled cause, comes by attorney and excepts to the amended information filed in said cause on the 27th day of November, 1909, in the particulars and on the grounds hereinafter set forth, to-wit:

I.

To the first paragraph or count of said information wherein it is averred that the food product seized in the cause is adulterated in violation of the Food and Drugs Act of June 30, 1906.

1. Because it is not shown that the substances, coca and cola, which are alleged to have been wholly or in part substituted by other substances in said food product are either of them ingredients or constituents of said food product as the same is ordinarily made and sold or according to its recognized standard.

2. Because the substitution of other substances for some of the ingredients of an article of food product is not per se an adulteration of the article under said Food and Drugs Act.

3. Because it is not alleged what substance has been substituted in the food product mentioned, for the substance coca.

4. Because the allegation that "the caffeine in said food product is derived from waste tea leaves and not from the cola nuts, as the name would indicate," is wholly immaterial and irrelevant.

5. Because it is not averred that there was ever a food product bearing the name of or known as Coca Cola, prior to the product of the claimant herein, which might be subject to adulteration by substituting therein some other substance for what is called in the information "the substance coca," or by substituting therein some other substance for what is called in the information "the substance cola."

6. Because it is not averred that there was ever a food product composed of coca and cola, whether bearing the name Coca Cola, or some other name, of which claimant's food product is an adulteration under the Food and Drugs Act of June 30th, 1906.

II.

To the second paragraph or count of the information, wherein it is averred that said food product is misbranded in violation of said act:

1. Because the allegation that the word or name coca as used in said label "leads one to believe" that the article contains "the active medicinal agents of coca leaves, one of which is cocaine, when, as a matter of fact, the product Coca Cola does not contain any coca" is vague, indefinite and argumentative, and does not charge any violation of law in that:

(a) It is not averred that the name is false and misleading.

(b) It is not averred that the article does not contain any of the principles of coca leaves.

2. Because the allegation that the word or name cola used in said label "leads one to believe that said product contains cola, whereas it contains no cola" is vague, indefinite and argumentative and does not charge any violation of law in that:

(a) It is not averred that the name is false or misleading.

(b) It is not averred what the word cola indicates.

(c) It is not averred that the article does not contain any of the principles of the cola nut or the cola tree.

3. Because the concluding clause of section 2 of the second paragraph or count of the information, to-wit: "the caffeine present being added as caffeine and not derived from the cola" is wholly irrelevant and immaterial.

4. Because the allegation that the label on said barrels and kegs "bears a pictorial design of the cola leaves and nuts and thus suggests the presence of cola in said product, which is misleading for the reason that said product contains no cola" is vague, indefinite and argumentative, and does not charge any violation of law, in that:

(a) It is not averred that said design is false or misleading.

(b) The nature of the substance, the presence of which would or might be indicated by the said design is not stated.

(c) It is not averred that the said product does not contain any substance derived from the cola nuts or cola leaves.

5. Because there are no such substances as coca or cola which could enter into said product, or whose presence in said product could be suggested either by the name coca cola or by the pictorial design mentioned in the information.

III.

And respondent excepts to the entire amended information and to every part thereof, because the article or food product alleged to be adulterated and misbranded is in no way described, nor are its proper ingredients or constituents stated or shown, in the information.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER,
Attorneys for Respondent.

(Endorsed) Filed December 27th, 1909.
By R. M .WATKINS, Dep. Clerk.

ORDER SUSTAINING EXCEPTIONS.

This cause came on to be this day heard before the Honorable Edward T. Sanford, Judge, etc., on the exceptions filed by the claimant and defendant to the amended information; and upon consideration, the Court is pleased to and does hereby, sustain the exceptions to the first and second sub-sections of the paragraph of the information charging adulteration, on the ground that they do not charge any violation of the Food and Drugs Act of June 30th, 1906; and also sustains the exceptions to the third sub-section under the same paragraph, on the ground that the same allegations were contained in the original information and issue joined in the answer thereto.

The Court also sustains the exceptions to the paragraph of the amended information charging misbranding, and sub-sections 1, 2 and 3 thereto, but on application of the District Attorney he is allowed ten days time in which to amend said paragraph and said sub-sections of the amended information, and the defendant is allowed ten days from the filing of said amendment in which to make defense thereto.

January 27th, 1910.

Enter: SANFORD, J.

(Endorsed). Filed January 27th, 1910.

By R. M. WATKINS, Dep. Clerk.

AMENDMENTS TO INFORMATION OR LIBEL.

In this case leave of the Court having first been obtained, the plaintiff, the said United States, through James R. Penland, United States Attorney, comes and files the following amendment to the Original Libel or Information heretofore filed in said case, and in addition to the allegations and things therein stated, makes the following averments:

That the said Coca Cola Company, a corporation incorporated under the laws of the State of Georgia, as heretofore alleged, has for a number of years past been engaged in, and now is engaged in the manufacture and sale of a food product known as Coca Cola, and from its name, Coca Cola, and the advertisements made of said product and the labels under which it is branded and shipped, it purports to be a food product or drink, composed of coca and cola, or at least to contain the active agents and principles of the coca plant, and of the cola nut or cola plant.

That on the 18th day of October, 1909, forty barrels and twenty kegs of said product was shipped by said company from Atlanta, Georgia, to Chattanooga, Tennessee, and labeled as alleged in the original information.

Said barrels and kegs containing said product were misbranded and shipped in violation of section 8 of the Food and Drugs Act of June 30th, 1906, in this:

(1) That on the label of each package is this statement: "Delicious and refreshing Coca Cola," which is a statement regarding the ingredients and substances contained therein, and is deceptive and misleading for the reason that said product contains no coca, nor does it contain any cola; that is, any active principle of cola derived from the cola nut or cola plant.

(2) Each label on said barrels and kegs bears not only the said statement "Delicious and refreshing Coca Cola," but it also bears a pictorial design of the cola leaves and

cola nuts, which is a statement and pictorial design regarding the ingredients and substances contained therein, and is deceptive and misleading for the same reasons alleged in paragraph one (1) above.

(3) Said product, which contains no coca, nor cola, that is none of the active principles or constituents derived from the cola nut or cola plant, is offered for sale under the distinctive name of another article, to-wit: Coca Cola, and is false and misleading.

Said product, Coca Cola, is adulterated in this: that coca or a product derived from coca leaves, a valuable constituent of said article has been wholly abstracted from said compound, Coca Cola. JAMES R. PENLAND,
United States Attorney.

James R. Penland, United States Attorney, makes affidavit that the statements contained in the foregoing amendments are true as he verily believes.

JAMES R. PENLAND.

Sworn to before me on this 2nd day of February, 1910.
(Seal). C. A. HILL, Dep. Clerk, U. S. Dist. Ct.
(Endorsed). Filed February 3rd, 1910.
HORACE VANDEVENTER, Clerk.
By R. F. McClure, D. C.

EXCEPTIONS TO AMENDMENT TO INFORMATION.

Now comes the said defendant, the Coca Cola Company, by attorney, and excepts to said amendments, as follows:

I.

To the paragraph of said amendment alleging that the food product manufactured by defendant and known as Coca Cola, "from its name Coca Cola, and the advertisements made of said product and the labels under which it is branded and shipped" purports to be "composed of coca and cola, or at least to contain the active agents and principles of the coca plant, and of the cola nut or cola plant."

Defendant excepts because:

(1) The name of a food product, or statements made in advertisements concerning it, do not constitute violations of the Food and Drugs Act of June 30th, 1906, which applies and refers only to statements, designs or devices *on the package* containing the product *or its label.*

(2) The advertisements and statements on the labels which it is alleged represent or indicate that said food product is "composed of coca and cola, or at least to contain the active agents and principles of the coca plant and the cola nut or cola plant," are not set forth.

(3) The information does not state what are "the act-

ive agents and principles of the coca plant and of the cola nut or cola plant," of which it is alleged said food product or drink purports to be composed.

(4) There are no such substances known to science as coca or cola, of which fact this Court will take judicial notice.

II.

To the paragraph of said amendment alleging that the statement "Delicious and Refreshing Coca Cola" on the labels of the packages containing said product is "deceptive and misleading for the reason that said product contains no coca, nor does it contain any cola that is any active principle of cola derived from the cola nut or cola plant,"—

Defendant excepts because:

(1) It is not alleged that said label represents that said product contains either coca or any active principle derived from the cola nut or cola plant.

(2) There are no such substances as coca, or cola, and there are no "active principles of cola."

(3) It is not averred what the "active principles of cola" are.

III.

To the paragraph of said amendment alleging that the pictorial design of cola leaves and cola nuts alleged to be contained on said labels, " is deceptive and misleading for the same reasons alleged in paragraph one (1) above."

Defendant excepts because:

(1) It is not alleged that said pictorial design represents that said product contains coca or an active principle derived from the cola nut or the cola plant.

(2) There are no such substances as coca or cola, and there are no "active principles of cola."

(3) It is not averred what the "active principles of cola" are.

IV.

To the paragraph of said amendment alleging that said product "is offered for sale under the distinctive name of another article, to-wit, Coca Cola,"—

Defendant excepts because:

(1) It is not alleged that there is any other article known or sold under the name of Coca Cola except the product made and sold by defendant under that name, as contained in the barrels and kegs in controversy in this cause.

(2) It is not alleged what the article Coca Cola, under the distinctive name of which the product attached is al-

leged to be offered for sale, is composed of, or in what respect the product attached differs therefrom.

V.

To the paragraph of said amendment alleging that said product is adulterated in that "Coca, or a product derived from coca leaves, a valuable constituent of said article, has been wholly abstracted from the said compound Coca Cola,"—

Defendant excepts because:

(1) It is not alleged what product derived from coca leaves is a valuable constituent of said compound, and has been abstracted therefrom.

(2) It is not alleged whether coca itself, or some product derived from coca leaves, constitutes a valuable constituent of said article and has been abstracted therefrom.

VI.

And defendant excepts to the entire amendment and each and every part thereof, because:

(1) It is not shown or averred what are the constituents or ingredients of the food product, Coca Cola, when made according to its true and proper standard, or in what respect the product attached in this case fails to conform to such standard.

(2) It is not shown or averred in what respect the name of said product, or any statements on the packages containing it or its labels, are false and misleading.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER,
Attorneys for Defendants.

(Endorsed). Filed February 12th, 1909.
By R. F. McCLURE, Deputy Clerk.

AMENDED INFORMATION.

In this case, on motion of James R. Penland, United States Attorney, the Court permits the Government's Libel or information to be amended so as to make the charges more specific.

And thereupon said United States Attorney comes and files the following amendments, to-wit:

Said barrels and kegs, containing said product Coca Cola, were misbranded and shipped for sale in violation of the Food and Drugs Act of June 30th, 1906, in this:

(1) That on the label of each package, among other things, is this statement: "Delicious and Refreshing Coca Cola." Said statement is a representation of the presence in said food product of the substances coca and cola. There

are such substances known as coca and cola, but said food product, Coca Cola, contains no coca nor cola. And as said statements and representations on said labels and packages containing said product, are statements and representations regarding the ingredients and substances contained therein, they are false and misleading, and in violation of said Food and Drugs Act.

(2) Each label on said barrels and kegs, containing said product, bears not only the said statement, "Delicious and refreshing Coca Cola," but also bears a pictorial design of the cola leaves and the cola nuts, which statement and pictorial design is a suggestion and representation of the presence of the substance cola in said food product, Coca Cola. And there are such known substances as cola, cola leaves, and cola nuts, the latter being the fruit of the cola plant, and is a further representation and suggestion of the presence of cola in said food product Coca Cola; and said product, Coca Cola, does not contain the substance cola in its composition, and therefore said statement and pictorial design appearing on said labels and packages are false and misleading, being statements and pictorial designs regarding the ingredients and substances contained in said packages.

(3) Said product, Coca Cola, is adulterated in this: that coca, which is a substance that may be used, and is used, by some people as a stimulant, a valuable constituent of said Coca Cola product as originally and formerly manufactured under its formula and branded and shipped for sale by said Coca Cola Company, has been wholly abstracted from said compound, Coca Cola, which is an adulteration within the meaning of said Food and Drugs Act.

Said product Coca Cola being misbranded, adulterated and shipped as aforesaid, is subject to libel for confiscation under section 10 of the Food and Drugs Act of June 30th, 1906.

JAMES R. PENLAND,
United States Attorney.

Sworn to and subscribed before me this 3rd day of March, 1910.

R. M. WATKINS, Dep. Clerk U. S. Dist. Court.

(Endorsed). Filed March 3rd, 1910.

R. M. WATKINS, Dep. Clerk.

ORDER SUSTAINING EXCEPTIONS.

This cause came on to be heard before the Honorable Edward T. Sanford, Judge, etc., on this the 2nd day of March, 1910, on the exceptions of the defendant to the amendment to the original libel or information filed in the

cause on February 3rd, 1910, and upon consideration, the Court is pleased to and does hereby sustain said exceptions, and said amendment is stricken out, except the clause numbered (3) in said amendment, which was withdrawn by the plaintiff, and thereupon the plaintiff presented to the Court a further amendment to the libel, which it is ordered to file, and the defendant is allowed ten (10) days to make defense thereto, except objections to the filing of the amendment, which are not allowed to be made.

March 3rd, 1910.

Enter: SANFORD, J.

(Endorsed). Filed March 3rd, 1910.

R. M. WATKINS, Dep. Clerk.

ANSWER TO AMENDED INFORMATION.

Now comes the Coca Cola Company, defendant to said cause, and for answer to the amended information filed in said cause on the 3rd day of March, 1910, says:

(1) Answering the paragraph numbered (1) in said amended information, that it is true that the label on each of the packages mentioned contains the words, "Delicious and refreshing Coca Cola"; but it is not true that said statement is a representation of the presence in said food product of the substances, coca and cola, and it is not true that there are such substances known as coca and cola. Said product does, however, contain certain elements or substances derived from the cola leaves and cola nuts.

And defendant shows and avers further that, as set forth in the answer to the original information, said food product which does not contain any added poisonous or deleterious ingredient, is, and has been for many years, known under its own distinctive name, to-wit: Coca Cola, and is not an imitation of or offered for sale under the distinctive name of another article, and that the name is accompanied on the same label or brand with a statement of the places where said product is manufactured or produced; and, therefore, as defendant is advised, the said food product is not adulterated or misbranded under the said Food and Drugs Act.

(2) Defendant denies each and every allegation in the paragraph numbered (2) in said amended information.

(3) Answering the allegations of the paragraph numbered (3) in said amended information, defendant says that no valuable constituent under the formula of Coca Cola has been abstracted from said compound, Coca Cola.

Wherefore, defendant prays that said amendment be dismissed with costs.

THE COCA COLA COMPANY.
By Asa G. Candler, Pt.
CANDLER, THOMPSON & HIRSCH,
PRITCHARD & SIZER,
Attorneys for Defendant.

The United States of America, }
Northern District of Georgia. }

Asa G. Candler, being duly sworn, deposes and says that he is president of the Coca Cola Company, the within named defendant; that he has read the foregoing answer, and that the statements therein made are true.

ASA G. CANDLER.

Sworn to and subscribed before me this 9th day of March, 1910.

G. T. COWART,
Commission expires Aug. 30, 1912.
Notary Public, Fulton County, Ga.

(Endorsed). Filed March 11th, 1910.
R. M. WATKINS, Dep. Clerk.

MEMORANDUM OPINION CONTINUING ACTION ON MOTION FOR NEW TRIAL.

Memorandum Opinion as to Motion for New Trial and Bills of Exception.

The libellant's motion for new trial, with the briefs, has been forwarded to me at Nashville for adjudication, but owing to the pressure of other work requiring immediate attention I have been unable to take up and consider the motion for new trial.

I have, therefore, concluded that in order that the rights of neither party may be prejudiced by this delay, an order should be entered reciting that the motion for new trial has been taken under advisement by the Court and its determination continued to the next term, and further providing that the cause is continued to the next term for the purpose of acting on the motion for new trial, and also for the purpose of settling, allowing, signing and filing any bills of exception that may be presented by either party herein. See Ward v. Cochran, 150 U. S., 597, 603; Minahan v. Grand Trunk R. Co. (C. C. A., 6), 138 Fed., 37. I have accordingly signed such an order for entry by the Clerk.

May 16th, 1911. SANFORD, Judge.

(Endorsed). Filed May 16th, 1910.
By R. M. WATKINS, Dep. Clerk.

ORDER OF CONTINUANCE.

This cause is continued upon application of the Plaintiff until the next term of Court.

O. K. — J. R. PENLAND, U. S. Attorney.

(Endorsed). Order of Continuance. Filed May 23rd, 1910.

HORACE VANDEVENTER, Clerk.

PETITION FOR LIBELLANT.

Your petitioner respectfully shows that the above cause is set for hearing at a special term called to convene first Monday in March, 1911, and that the Coca Cola Company, intervenor and claimant herein, has applied for a trial by jury. Petitioner refers to the entire record herein as showing in detail the various steps taken by the respective parties hereto up to this time.

Without admitting that the demand of the claimant for a jury is made in time, manner and form as required by law (reserving all legal rights on this point), but assuming petitioner's position in this respect should be overruled, it now respectfully shows that a special or new panel should be drawn to try the issues involved herein, and that the panel drawn for service at the November-December Term, 1910, is ineligible and should not be re-empaneled for service herein for the reasons following:

(1) Rule 22 of this Court provides in substance that jurors shall be drawn on the fourth Monday preceding the first day of the term of Court at which jurors are to serve. Said jurors were not drawn on the fourth Monday preceding the first day of the term at which they were to serve.

(2) Said rule provides that the jurors shall be drawn between the hours of 10 a. m. and 3 p. m., whereas, they were not drawn between the hours thus designated, but were drawn shortly after 4 p. m.

(3) Said rule further provides that notice of the drawing of such jurors shall be posted in the office of the Clerk not less than ten days preceding the drawing, whereas, notice was not posted in the office of the Clerk ten days preceding the drawing, and as petitioner is informed and advised, was not posted until at the very most two days previous to the drawing and most likely not until the day of the drawing.

Wherefore petitioner prays for a special panel, as above.

JAMES B. COX,
U. S. District Attorney for the Eastern District of Tennessee.

State of Tennessee, }
County of Knox. }

James B. Cox, being sworn, says he is U. S. District Attorney for the Eastern District of Tennessee, charged with the prosecution of the cause styled at the commencement of the foregoing petition; that he has read and knows the contents of said petition and that the same is true to the best of his knowledge, information and belief.

JAMES B. COX.

Sworn to and subscribed before me this 4th day of January, 1911.

HORACE VANDEVENTER, U. S. Com., E. D. T.

It is hereby stipulated that this application may be acted on by the Hon. E. T. Sanford, Judge, at Knoxville, Tennessee, on January 9th, 1911, at the Court Room at 10 a. m., this action to have the same form and effect as if in open court at Chattanooga, Tennessee, in term time. But it is not considered that the facts stated in the petition justify the summoning of a special panel to try said cause.

PRITCHARD & SIZER,
Attorneys for Defendant.

January 5th, 1911.
(Endorsed). Filed January 5th, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER ALLOWING AMENDED INFORMATION.

In this cause the libellant presented and is permitted to file an Amended Information, same to stand in lieu and stead of the former information and all amendments thereto heretofore filed, and the claimant will have fifteen days in which to make defense thereto.

By consent of parties and order of the Court, the case will be prepared for and stand for trial commencing first Monday in March, 1911.

The filing of the amended information will date as of October 21, 1909, and will not impair the force and legal effect of the previous attachment and seizure herein; nor will it affect the liability of the claimant and bondsmen in the premises.

January 6, 1911. Enter: SANFORD, J.

O. K., W. B. MILLER, Sp. A.
J. B. SIZER,
Attorneys for Defendant.

(Endorsed). Filed Jan. 6, 1911.
R. M. WATKINS, D. C.

AMENDED INFORMATION.

This amended libel of the United States of America in and for the Southern Division of the Eastern District of Tennessee, prosecuted by the United States Attorney in and for said District, respectfully represents and shows:

I.

The original libel herein was filed by the United States of America through the District Attorney in and for the District aforesaid, and prayed seizure for the condemnation of 40 barrels and 20 kegs of a certain article of food or food product, purported and represented to be "Coca Cola." Said condemnation was sought under Act of Congress commonly known as "Food and Drugs Act."

Pursuant to the prayer of said original libel seizure of said food product was had, after which the Coca Cola Co., of Atlanta, Georgia, intervened and gave bond as in such cases provided, whereupon said food product, with the exception of one keg, was released.

Said seizure and condemnation were sought because of the matters in said original libel shown, all of which, together with other causes and grounds for seizure and condemnation, are hereinafter set forth.

II.

And in this behalf the United States of America, by this amended libel, represents that on or about the 18th of October, 1909, the Coca Cola Co., of Atlanta, Ga., a corporation doing business in several states, and particularly in the States of Georgia and Tennessee, transported, or caused to be transported for sale by an interstate carrier, from the City of Atlanta, Ga., to Chattanooga, Tennessee, consigned to Coca Cola Bottling Works alone, or to it in connection with and for the use of itself and one or more other persons, partnerships or corporations, a consignment of 40 barrels and 20 kegs of said food product, Coca Cola.

Said 40 barrels and 20 kegs of Coca Cola thus transported for sale were each and all labeled:

"Delicious and refreshing Coca Cola, manufactured by the Coca Cola Co., Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the Food and Drugs Act of June 30th, 1906. Our serial number is 3324."

"THE COCA COLA COMPANY.

"By Asa G. Candler, Pt."

Said consignment of 40 barrels and 20 kegs was an interstate shipment and was received at Chattanooga on or about October 20, 1909, and on or about said date was

seized under the original information or libel filed herein, and at the time of filing such original information and of such seizure, said consignment of 40 barrels and 20 kegs of Coca Cola remained unloaded, unsold or in original unbroken packages, in Chattanooga, Tennessee.

Said food product, as above stated and described, was adulterated under the Act of Congress aforesaid, in this:

(a) Said product contained an added ingredient, caffeine, which was and is a poisonous ingredient, and might have rendered, and may render, said food product injurious to health.

(b) Said product contained an added ingredient, caffeine, which was a deleterious ingredient, and may render, or might have rendered, said food product injurious to health.

(c) Said food product had been mixed, colored, powdered, coated or stained, by the use of sugar coloring, caramel, and other coloring substances, and by the use of certain flavoring substances, consisting of oil of lemon, sugar, syrup, and lime juice, whereby damage or inferiority of the mixture (the food product, Coca Cola) was concealed, in this that said food product, in the mixing and preparation, contained germs emanating from the body, perspiration, and spittle of the employees of the Coca Cola Company, engaged in mixing and making said food product; and it also contained germs due to divers unsanitary conditions, such as overhanging cobwebs, dirty factory, machinery, apparatus and appliances, insects of various kinds, including flies, bees, spiders and mice; wherefore and by reason of said germs and other substances above enumerated, together with the unsanitary surroundings and conditions incident to manufacture, said food product was of a damaged and inferior quality, which damage and inferiority was concealed by the flavoring and coloring aforesaid.

SECOND COUNT.

And the said Coca Cola Company, of Atlanta, Georgia, transported, or caused to be transported, for sale the 40 barrels and 20 kegs of said food product, Coca Cola, as in the first count hereof shown, to Coca Cola Bottling Works, Chattanooga, Tennessee, alone, or for itself and another or others, labeled as in the first count shown.

And said consignment and transportation, made for the purpose of sale, was received by the consignee or consignees, one or all, on or about October 20th, 1909, and on or about said date was seized under the original information filed herein, and at the time of such filing and seizure,

said 40 barrels and 20 kegs remained unloaded, unsold or in original unbroken packages, in Chattanooga, Tennessee.

The shipper was a corporation, and for a number of years past engaged in the sale of said food product, and the said product thus transported and seized was misbranded in violation of the Food and Drugs Act of June 30th, 1906, passed by Congress in this:

(1) The label on each package, among other things, contained the statement, "Delicious and Refreshing Coca Cola." The expression "Coca Cola" thus employed was and is a representation of the presence in said food product of the substances coca and cola. There are and were such substances *popularly* known as coca and cola, *and* under their own distinctive names, but said food product "Coca Cola" contained no coca and little if any cola.

Therefore said food product is (1) an imitation of the articles or substances Coca and Cola, and (2) was offered for sale under the distinctive name of said two substances coca and cola.

(2) Each label on said barrels and kegs bore not only the said statement "Delicious and Refreshing Coca Cola," among other things, but also a pictorial design of coca leaves and cola nuts, which was and is a suggestion and representation of the presence of coca and cola in said food product "Coca Cola". The coca leaves were thus represented to be the leaves of the coca plant, and the cola nuts to be the fruit of the cola plant.

Wherefore, said pictorial design was a representation and suggestion of the presence of both coca and cola in said food product, when in truth it did not contain any coca, and contained little, if any, cola in its composition, and thus said statement and pictorial design appearing on said labels and packages were and are false and misleading statements and designs regarding the ingredients and substances contained in said barrels, kegs and product.

III.

WHEREFORE, the United States of America prayed in the original libel that process issue and that the United States Marshal of this District be commanded to seize the barrels and kegs aforesaid for condemnation, confiscation and to be dealt with as the law directs and this Honorable Court might determine, which prayer is here and now adopted and renewed, and the Honorable Court is further asked to proceed as in cases of admiralty, so far as is applicable, and that by appropriate order the article of food and food product aforesaid be condemned at the suit of this libellant, according to Act of Congress, and that the inter-

venor and claimant be charged with all the costs of this cause and required to pay such further sums and penalties as warranted by statute.

The libellant further prays for such other, further and general relief as the nature of the case may require.

JAMES B. COX,
Attorney for the United States in and for Southern Division of the Eastern District of Tennessee.

W. B. WILLER, Special Assistant.

United States of America,
Southern Division, Eastern District of Tennessee.

I, James B. Cox, on oath, do state that I am the District Attorney of the United States in and for the Southern Division of the Eastern District of Tennessee; that I have read the foregoing Amended Libel by me subscribed, know the contents thereof, and that the statements made and contained therein are based on information furnished by and through the Department of Agriculture and the Bureau of Chemistry of the United States, and are believed to be true, and that said information is filed by the request of the Secretary of Agriculture of the United States.

JAMES B. COX, U. S. Attorney.

Sworn to and subscribed before me this 27th day of December, 1910.

(Seal). C. A. HILL, Dep. Clerk U. S. Dist. Court.

(Endorsed). Filed January 6, 1911.
By R. M. WATKINS, Dep. Clerk.

ANSWER.

The answer of the Coca Cola Company, defendant, and owner of the property seized and attached in the above entitled cause, to the amended information filed herein on the ..... day of ....., 19.....

I.

Defendant admits the averments in paragraph 1 of said amended information.

II.

Defendant admits that it is a corporation as alleged; that it shipped as averred forty barrels and twenty kegs of a food product known as Coca Cola, and that the said 40 barrels and 20 kegs were each and all labeled as follows:

"Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30th, 1906. Our serial number is 3324.

"THE COCA COLA CO.
"By Asa G. Candler, Pt."

It is admitted that said consignment was an interstate shipment; that it was received by the consignee at Chattanooga, Tennessee, on or about the date stated in the information; and that it remained in the original unbroken packages in Chattanooga, Tennessee, and in the possession of the consignee at the time it was seized by the Marshal under the attachment issued in this cause.

(a) It is admitted that said food product contained as one of the ingredients a small portion of caffeine; but it is denied that the caffeine as so contained was or is an added ingredient; and it is denied that the caffeine was or is a poisonous ingredient, which might have rendered or may render said food product injurious to health.

(b) It is denied that the caffeine as so contained was or is an added ingredient, and it is denied that caffeine as contained in the food product was or is a deleterious ingredient, which may render or might have rendered said food product injurious to health.

(c) Defendant denies each and every averment contained in sub-section (c) of paragraph II of said amended information.

III.

(1) Defendant denies that the expression "Coca Cola," as used on the labels on said packages was or is a representation of the presence in said food product of the substances coca and cola; and denies that there are such substances *popularly* known as coca and cola under their own distinctive names. But said food product does contain certain elements or substances derived from coca leaves and cola nuts.

(2) Defendant denies that said product is or was an imitation of or is or was offered for sale under the distinctive name of any other article.

(3) Defendant denies that the labels on said barrels and kegs bear any statements or pictorial design regarding the ingredients and substances contained therein which are false or misleading in any particular.

(4) And for further answer, defendant says that the name of said food product as contained on the labels aforesaid, to-wit: "Coca Cola," is the distinctive name of the said food product, under which said product is now known and sold, and has been known and sold for more than twenty years past, as an article of food; that said food product is a mixture or compound, which does not contain any added poisonous or deleterious ingredient, and is not an imitation of or offered for sale under the distinctive name of any other article; and that the said name is ac-

companied on the same label with a statement of the places where said article is manufactured or produced. Wherefore defendant pleads and says that said article is not to be deemed adulterated or misbranded, under the provisions of said Food and Drugs Act of June 30th, 1906.

(5) Each and every allegation of said amended information not hereinbefore specifically admitted or denied is now denied.

WHEREFORE, defendant prays that this proceeding be dismissed, and that it go hence with its reasonable costs.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER,
Attorneys for Defendant.

The United States of America,
Northern District of Georgia.

Asa G. Candler being duly sworn, deposes and says that he is the president of the Coca Cola Company, the within named defendant; that he has read the foregoing answer and knows the contents thereof; and that the statements in said answer made as of defendant's own knowledge are true, and those made as on information and belief he believes to be true.

ASA G. CANDLER.

Sworn to and subscribed before me, this 6th day of January, 1911.

(Seal).

BARRINGTON T. KING.
Notary Public, Fulton Co., Ga.

(Endorsed). Filed January 10th, 1911, by R. M. Watkins, D. C.

PETITION OF LIBELLANT.

Your petitioner respectfully shows that the above cause is set for hearing at a special term called to convene first Monday in March, 1911, and that the Coca Cola company, intervenor and claimant herein, has applied for a trial by jury. Petitioner refers to the entire record herein as showing in detail the various steps taken by the respective parties hereto up to this time.

Without admitting that the demand of the claimant for a jury is made in time; manner and form as required by law (reserving all legal rights on this point), but assuming petitioner's position in this respect should be overruled, it now respectfully shows that a special or new panel should be drawn to try the issues involved herein, and that the panel drawn for service at the November-December term, 1910, is ineligible and should not be re-empaneled for service herein for the reasons following:

(1) Rule 22 of this Court provides in substance that

jurors shall be drawn on the 4th Monday preceding the first day of the term of Court at which jurors are to serve. Said jurors were not drawn on the fourth Monday preceding the first day of the term at which they were to serve.

(2) Said rule provides that the jurors shall be drawn between the hours of 10 a. m. and 3 p. m., whereas they were not drawn between the hours thus designated, but were drawn shortly after 4 p. m.

(3) Said rule further provides that notice of the drawing of such jurors shall be posted in the office of the Clerk not less than ten days preceding the drawing, whereas, notice was not posted in the office of the Clerk 10 days preceding the drawing, and as petitioner is informed and advised, was not posted until at the very most, two days previous to the drawing and most likely not until the day of the drawing.

Wherefore, petitioner prays for a special panel, as above.

J. B. COX,
U. S. District Attorney for Eastern District of Tennessee.

State of Tennessee,
County of Knox.

James B. Cox, being sworn, says he is U. S. District Attorney for the Eastern District of Tennessee, charged with the prosecution of the cause styled at the commencement of the foregoing petition; that he has read and knows the contents of said petition, and that the same is true to the best of his knowledge, information, and belief.

J. B. COX.

Sworn to and subscribed before me this 4th day of January, 1911.

It is hereby agreed that the foregoing is a copy of a petition that was duly verified and notice thereof served on the undersigned on January 5th, 1911, to the effect that said petition would be presented to Hon. E. T. Sanford, Judge, at Knoxville, Tennessee, for action thereon, on January 11, 1911.

Said original petition has been lost or mislaid, and it is now agreed that the foregoing may have the same force and effect as the original, and may be presented to Judge Sanford for action on January 14, 1911, at Knoxville, Tennessee, without further notice.

By this stipulation, the undersigned does not admit that on the facts stated the government is entitled to the relief sought in said petition, but challenges the government's petition in this behalf. This January 4th, 1911.

J. B. SIZER, Atty. for Intervenor and Claimant.

(Endorsed). Filed, January 12th, 1911.

R.M. WATKINS, D. C.

MOTION OF RESPONDENT FOR COMMISSIONER TO TAKE DEPOSITION.

In this cause the respondent and claimant, the Coca Cola company, comes by attorney and moves the Court for an order granting and directing the issuance of a commission to take the depositions of Dr. Oswald Schmiedeberg, of Strassburg, Germany, on interrogatories this day filed; said motion being based on the affidavit of J. B. Sizer, attorney for said respondent and claimant, filed herewith.

This 11th day of January, 1911.

THE COCA COLA COMPANY,
By J. B. SIZER, Attorney.

Due and legal service of the foregoing motion and receipt of a copy thereof, as well as of the affidavit of J. B. Sizer and of the interrogatories of Dr. Oswald Schmiedeberg therein referred to is hereby acknowledged.

This 11th day of January, 1911.

W. B. MILLER,
Special Atty. for the United States of America.

In the above entitled cause came J. B. Sizer, attorney for the Coca Cola company, the claimant and respondent in the above entitled cause, who, being duly sworn, deposes, and says:

That the testimony of Dr. Oswald Schmiedeberg, who resides in the City of Straussburg, Germany, is material and important on behalf of the said claimant and respondent in the above entitled cause; and that to obtain said testimony it is necessary in order to prevent a failure or delay of justice in said cause, that this Honorable Court grant an order directing the issuance of a commission to examine the said Dr. Oswald Schmeideberg on the interrogatories herewith filed, and cross-interrogatories, if any, to be filed by opposing counsel.

That a copy of this affidavit, and of the motion hereto attached, as well as of the interrogatories to be propounded to the said witness, have been duly served on and delivered to W. B. Miller, Esq., special attorney representing the plaintiff in said cause, as shown by the acknowledgement of service endorsed on said motion.

J. B. SIZER.

Sworn to and subscribed before me this 11th day of January, 1911.

R. M. WATKINS.

(Endorsed). Filed Jan. 12, 1911.
R. M. WATKINS, Deputy Clerk.

ORDER APPOINTING COMMISSIONER TO TAKE DEPOSITIONS.

On reading and filing the affidavit of defendant's attorney, it is, on motion of the defendant's attorney, ordered that a commission be issued in this cause out of this Court, directed to Dr. Max Alder, authorizing and empowering him to examine under oath as a witness in this cause, Dr. Oswald Schmeideberg, a resident of Straussburg, Germany; said examination to be taken on the interrogatories and cross-interrogatories on file in the cause, propounded by counsel for the respective parties. It is further ordered that the testimony of said witness, on said examination, shall be reduced to writing, signed by the witness and certified by the commissioner named herein, and by said commissioner transmitted by mail to the Clerk of this Court, at the City of Chattanooga, Tennessee.

It is further ordered that all testimony taken under the commission provided for herein, shall be taken subject to all legal objections at the trial of this action.

Done at Chambers, on this 21st day of Jan., 1911.

SANFORD, Judge.

O. K.: W. B. MILLER, Sp. A.
J. B. SIZER.

(Endorsed). Filed January 21st, 1911.
R. M. WATKINS, D. C.

STIPULATION OF COUNSEL.

In this cause, it is agreed that the District Judge may pass on the petition for a special or new panel of jurors while absent from the Eastern District of Tennessee, and that his action in this behalf will not be questioned for want of jurisdiction, but will have the same force and effect as if he were within the Eastern District of Tennessee at the time of acting on the application of the Libellant.

This 26th day of Jan., 1911.

W. B. MILLER, Special Counsel for Libellant.
J. B. SIZER, Atty. for Claimant.

(Endorsed). Filed, Jan. 30, 1911.
R. M. WATKINS, D. C.

MEMO. OPINION DIRECTING NEW PANEL OF JURORS.

Memorandum opinion on Libellant's application for special or new jury panel.

On considering the matters set forth in the petition, I am of the opinion that the irregularities in the drawing of the regular panels of jurors for this term of Court are such that upon the application of the Libellant, which is

in the nature of a challenge to the array, and to which the Claimant states in its brief, it "has no particular objection," a new jury should be drawn to hear this case.

An order will accordingly be entered directing the Clerk and jury commissioner to draw, as soon as may be, from the jury box, in the manner provided by law and by rule 22, a new panel of twenty-four jurors, ten days notice of the time and place of such drawing to be given to the resident counsel of each party in this cause; and such jurors to be thereupon forthwith summoned by the Marshal in the usual manner, for the day on which this case has been set for trial.

As the Clerk and jury commissioner are officers of the Circuit Court, on the day set for such trial an order may be then entered in accordance with the statute, providing that such jurors shall serve interchangeably in this Court. Before drawing the names the Clerk and jury commissioner will be careful to see that the box contains the requisite number of names, possessing the statutory qualifications and placed therein alternately by the clerk and commissioner as required by Sec. 2 of Act of June 30th, 1879, ch. 52, 21 stat. L. 43.

SANFORD, District Judge.

(Endorsed). Filed, February 10th, 1911.
R. M. WATKINS, Deputy Clerk.

ORDER THAT NEW JURY BE DRAWN.

On consideration of the petition of libellant herein, it is ordered and adjudged that a new jury be drawn to hear this cause.

It is further ordered that the Clerk and jury commissioner draw, as soon as may be, from the jury box in the manner provided by law and by rule 22 (except as herein modified) a new panel of 24 jurors, and that ten days notice of the time and place of such drawing be given to the resident counsel for the libellant and claimant herein.

On such jurors being drawn, they will be forthwith summoned by the Marshal in the usual manner to appear for service on the date set for trial.

The Clerk and jury commissioner, before drawing the names from the box, will be careful to see that it contains the requisite number of names possessing the statutory qualifications, such names, being placed therein alternately by them, as required by Section 2, Act of June 30, 1877, ch. 52, 21 stat, L. 43.

The Court filed a written opinion in the premises which

is made a part of the record.
Feb. 11, 1911. Enter: SANFORD, Judge.
O. K., W. B. MILLER, Sp. A.
J. B. SIZER, for Def't.
(Endorsed). Filed Feb. 11, 1911.
R. M. WATKINS, D. C.

BE IT REMEMBERED, that at a District Court of the United States, held for the Southern Division of the Eastern District of Tennessee, at the Court Rooms in the City of Chattanooga, within said District and the Sixth Circuit, on the first Monday, it being the 28th day of November, A. D., 1910. Present and presiding, the Hon. Edward T. Sanford, District Judge. Among the proceedings had were the following, to-wit:

MONDAY MORNING, MARCH 13TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came the parties by their attorneys, came also the following jury, to-wit: G. W. Plumlee, J. J. Woody, J. E. Standifer, R. S. Brown, Grant Simmons, Sig Klaus, J. A. Maybray, W. M. Springfield, William Ball, Joseph Hatfield, E. E. Young, and J. B. Shipley, good and lawful men, citizens and freeholders of the Southern Division of the Eastern District of Tennessee, who being duly elected, tried and sworn to try the issues joined between the parties and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, MARCH 14TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel or the charge of the Court, they are respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, MARCH 15TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until

this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, MARCH 16TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

FRIDAY MORNING, MARCH 17TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at eight-thirty o'clock.

SATURDAY MORNING, MARCH 18TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until Monday morning at nine o'clock.

MONDAY MORNING, MARCH 20TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on Saturday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, MARCH 21ST, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, MARCH 22D, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, MARCH 23D, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

FRIDAY MORNING, MARCH 24TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

SATURDAY MORNING, MARCH 25TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. San-

ford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until Monday morning at nine o'clock.

MONDAY MORNING, MARCH 27TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, MARCH 28TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, MARCH 29TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, MARCH 30TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until

today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

FRIDAY MORNING, MARCH 31ST, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

SATURDAY MORNING, APRIL 1ST, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until Monday morning at nine o'clock.

MONDAY MORNING, APRIL 3D, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on Saturday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, APRIL 4TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday who were respited until today, and who not having heard all the evidence, the argument of counsel or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, APRIL 5TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, APRIL 6TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning at nine o'clock.

The motion of the defendant and claimant for peremptory instructions to the jury having been argued, and considered by the Court, the same was in part sustained, and in part overruled, as shown by the opinion of the Court, this day filed, and which is hereby made a part of this order.

Thereupon counsel for the United States of America in open Court and before the jury dismissed, without prejudice, the amended libel in so far as the same averred in sub-section (c), paragraph 11, wherein it was averred in substance that the food product attached in this cause had been mixed, colored, powdered, coated, or strained, etc., whereby damage and inferiority of said product had been concealed; and, also in like manner dismissed sub-section (2) of the second count of said amended libel wherein it was averred that each label on the barrels and kegs attached in this cause bearing a pictorial design of coca leaves and cola nuts, which was, and is suggestive and a representation of the presence of coca and cola in the food product attached.

The said dismissal having been allowed by the Court, the Court thereupon directed the jury to return a verdict in favor of the defendant and claimant, The Coca Cola Company, which was done, and to which the libellant duly excepted.

It is thereupon considered by the Court that the defendant and claimant, Coca Cola Company, have and recover of the United States of America all the costs of this cause.

O. K. W. B. MILLER, for Government.

MOTION OF LIBELLANT FOR NEW TRIAL.

Now comes the Libellant, United States of America, by attorney, and moves the Court to set aside the verdict and judgment in said cause and grant a new trial for following reasons:

(1) The Court erred in peremptorily instructing the jury that the Coca-Cola in controversy was not adulterated, as averred in the Libel.

(2) The Court erred in its findings, conclusion and direction that the Coca-Cola seized was not adulterated, the finding and direction in this behalf being substantially as follows:

> "And I therefore conclude that as a matter of law the Coca-Cola in question is not to be deemed as adulterated by the presence of caffeine as an 'added' ingredient within the true intent and meaning of the act. * * * It results that in so far as the libel charges that Coca-Cola is adulterated because it contains caffeine as an added ingredient, the claimant's motion for peremptory instructions must be sustained."

(3) Whethter or not caffeine was a deleterious or poisonous ingredient of the Coca-Cola syrup which might have rendered the product injurious to health, should have been submitted to the jury.

(4) The Court erred in its findings, conclusions and direction that the name "Coca-Cola" did not constitute a representation of the presence in the product seized of the substances Coca and Cola, and hence that such product was misbranded, the Court's conclusion in this behalf being:

> "It results from the facts hereinbefore found from the undisputed evidence, that in so far as the libel charges the mis-branding of the Coca-Cola by reason of any false statement or suggestion contained in the name itself, the claimant's motion for peremptory instructions must be sustained."

(5) The Court erred in its findings, conclusion and direction that the Coca-Cola seized was not offered for sale under the distinctive name of the substances coca and cola, one or both, as averred in the libel, its conclusion in this behalf being:

> "It also results from what has been heretofore stated that in so far as the libel charges that the Coca-Cola is mis-branded because of being an imitation of or offered for sale under the distinctive name of another article, in the entire absence of evi-

ence to show that this is the case, the claimant's motion for peremptory instructions in so far as this charge of the libel is concerned, must also be sustained."

(6) The Court erred in its conclusion that "in so far as any statement or suggestion contained in the name itself is concerned," the product seized was not mis-branded.

(7) The Court erred in its failure and refusal to submit the case to the jury on issues 1, 2, 4, 5, 6, 7, 8, and 9, submitted by libellant.

(8) The Court erred in finding and holding that —

"the name Coca-Cola is a trade name which has for many years been given by the manufacturer to the food product in question and upon which name a trade mark was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages, consisting of a sweet syrup, colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent after being subjected to a process by which the cocaine and certain other ingrredients are extracted, and also containing as an essential ingredient of the compound caffeine, obtained in the main by chemical extraction from them; that this compound has been for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about 1 1-5 grains to each fluid ounce of the syrup, although slightly less caffeine is contained in the syrup prepared for use in bottles than in that prepared for use at soda fountains; * * * that for many years this compound containing such caffeine has been sold under this trademark name Coca-Cola, has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States; * * * that this name distinguishes this particular product from all other beverages and articles and clearly identifies it as a particular kind and brand of beverage made by its manufacturer and sold under this name, and distinguishes it from all

other beverages or food products manufactured and sold by other persons", —

because the undisputed proof shows that cocaine in appreciable quantities was used in this mixture up to about 1904, and was then taken out of the mixture, so that the ingredients have not been the same or substantially the same since the use of cocaine was dispended with.

The finding aforesaid that the mixture contains, "perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent in its preparation after being subjected to a process by which the cocaine and certain other ingredients are extracted is erroneous," in that (a) up to about 1904 all the cocaine was not extracted, but, on the contrary, an appreciable quantity was contained in the mixture, and (b) none of the ingredients contained in the mixture impart to it either an appreciable quantity or desirable quality of Coca or Cola.

(9) The Court erroneously found and held in substance that for a long number of years Coca-Cola had been made according to the same formula.

(10) The Court erroneously found and held that Coca-Cola "imitates no other article and is not sold under the distinctive name of any other article," for this, that the name itself implies a mixture or compound of an appreciable quantity of Coca and Cola, imparting to the product seized a substantial or desirable quality of both said substances Coca and Cola.

(11) The Court erroneously found and held that the name Coca-Cola, "distinguishes this particular product from all other beverages and articles," for this, that said name does not distinguish the product from any other mixture or compound composed of Coca and Cola.

(12) The Court erroneously found and held that if Coca-Cola, "were sold as 'Coca-Cola' without containing caffeine, the public buying it under this name would be in fact deceived," for this, that there is no proof sustaining this conclusion, or at least the proof cannot be said to be undisputed in this respect.

(13) The Court erroneously found and held that the mixture of Coca-Cola seized "has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States," for this (a) that the mixture advertised and sold under the name Coca-Cola prior to about 1904, contained an appreciable quantity of cocaine, and since that time the cocaine has been removed therefrom; and (b)

the proof is not undisputed that the mixture in question has "become generally known * * * to consumers in the United States" as a caffeine-containing drink.

(14) The Court erroneously found and held that —

> "In short, Coca-Cola without caffeine would not be Coca-Cola as it is known to the public, and would not produce the effect with the Coca-Cola bought by the public under that name produces, and if it were sold as Coca-Cola without containing caffeine, the public buying it under this name would be in fact deceived," —

for this, that the undisputed proof does not support such finding.

This motion is based on the records and files in the cause and the testimony taken on the trial thereof.

THE UNITED STATES,
By JAMES B. COX, U. S. District Atty.

W. B. MILLER,
Special Assistant to the Atty. General.

(Endorsed) Filed April 15, 1911.
R. M. WATKINS, D. C.

ORDER CONTINUING.

In this case the libellant's motion for new trial having been taken under advisement by the Court, this cause is continued to the next term of this Court for the purpose of acting upon said motion for new trial and entering any further orders or decrees that may be necessary in consequence of any action that may be taken on such motion for new trial, and also for the purpose of settling, allowing, signing and filing any bills of exception that may be presented by either the libellant or the claimant after action has been taken on said motion for new trial.

May 16, 1911. Enter.
SANFORD, Judge.

(Endorsed). Filed May 16, 1911.
R. M. WATKINS, Dep. Clerk.

MEMO. OPINION OVERRULING MOTION FOR NEW TRIAL.

Memorandum opinion on Libellant's motion for new trial.

After careful consideration of the motion for new trial I am of the opinion that the same should be overruled.

In the main the motion presents in its various grounds the same construction of the Food and Drugs Act and the same argument in support thereof derived from the Con-

gressional debates and other sources which were urged with great force in behalf of the libellant in the oral argument which preceded the granting of the motion for peremptory instructions, and which set forth a construction of the Food and Drugs Act in which, after careful consideration, I was unable to concur.

In view of the fact that the reasons which in my opinion lead to the construction of the act upon which the claimant's motion for peremptory instructions was sustained were fully stated at the time, I deem it unnecessary to repeat what was then said, but only add that I think the conclusion reached in reference to the question of a "distinctive name" finds some support in the opinion of Judge Hazel in the matter of the misbranding of flavoring extracts, (notice of judgment 806, Food and Drugs Act, pp. 4 and 6), as well as in the charge of Judge Sanborn in the matter of misbranding of mapleine, (notice of judgment 163, Food and Drugs Act, p. 3). Further the ruling as to the force and effect of the word "added" as used in the act in connection with deleterious ingredients finds some support in the opinion of Judge Landis in the case of United States v. 1950 Boxes Macaroni, 181 Fed., 427; although it is undoubtedly true that in some other reported cases in the notices of judgment under the Food and Drugs Act the force and effect of the word "added" seems to have been overlooked and neither called to the attention of the Court nor considered by it.

2. Neither can I think that the effect to be given to the distinctive name Coca Cola under the act is taken away by the fact that in the earlier process of its manufacture there was a slight trace of cocaine in the compound which it has not contained in recent years, for two reasons:

1st. This slight trace of cocaine which the product formerly contained, even if it had any appreciable effect, which is doubtful, did not in any degree affect the question of the caffeine contained in the compound, which is alone the subject of complaint in the libel, and the amount of which has always been the same, the elimination of the slight trace of cocoaine, under the undisputed evidence, having the effect of diminishing the effect of the caffeine, if it had any effect at all; and, second, however this may be, I think the undisputed proof shows the acquisition by this product of the distinctive name of Coca Cola, in its present form, with the same amount of caffeine and without any cocaine whatever, in the several years that have elapsed since the slight trace of cocaine which it originally contained was entirely removed by the new process to which the coca leaves were subjected.

I am therefore of opinion that the motion for new trial should be overruled.

3. The libellant having, at the request of the Court, submitted a brief upon the question of costs, in view of the doubt in the mind of the Court as to the propriety of taxation of costs against the libellant under the judgment as originally prepared by counsel, upon examination of the authorities I am satisfied that this decree was erroneous in so far as it taxed the entire costs of the proceeding against the libellant and that the decree should be modified so that no costs shall be taxed against the libellant, and all the claimant's own costs adjudged against it. See United States v. Boyd, 5 How., 29, 51; Pine River Logging Co. v. United States, 186 U. S., 279, 296; Revised Statutes, Sec. 979; Supreme Court Rules, No. 24, clause (4).

4. An order will accordingly be entered overruling the motion for new trial and correcting the former judgment as to costs in the manner indicated in this opinion.

June 8, 1911. SANFORD, Judge.

(Endorsed). Filed June 8, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER OVERRULING MOTION FOR NEW TRIAL.

In this cause, the motion of the libellant to set aside the verdict and judgment and award a new trial is, upon consideration, overruled and disallowed.

To the action of the Court in overruling said motion the libellant then and there excepted.

It is further ordered that the decree heretofore entered in this cause adjudging all costs against the libellant be and the same is hereby so modified and corrected as to adjudge and provide that no costs shall be taxed against the libellant and that the claimant pay its own costs in the cause.

June 8, 1911. Enter. SANFORD, J.

O. K. — W. B. MILLER, Special Assistant.
J. B. SIZER, Atty. for Defendant.

(Endorsed). Filed June 8, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER EXTENDING TIME FOR BILL OF EXCEPTIONS.

In this cause, on application of libellant, it is allowed an extension of twenty (20) days in addition to the time allowed under Rule 17 of this Court, in which to perfect and have filed a Bill of Exceptions.

Approved: Ordered entered June 22, 1911.
SANFORD, Judge.

W. B. MILLER, Sp. Asst.
J. B. SIZER, for Defendant.
(Endorsed). Filed June 26th, 1911.
R. M. WATKINS, D. C.

UNITED STATES
vs.
FORTY BARRELS
AND
TWENTY KEGS OF COCA COLA. } No. 53.

BILL OF EXCEPTIONS.

On the trial hereof, the claimant tendered the following issues for admission to the jury:

In the District Court of the United States for the Southern Division of the Eastern District of Tennessee.

United States,
vs.
Forty Barrels and Twenty Kegs Coca Cola.

Now comes the defendant by attorney and tenders the following issues of fact, arising under the amended information and the answer thereto, and moves that they be submitted to the jury for determination:

1. Is the caffeine contained in the food product coca cola an added ingredient?

2. Is the caffeine as contained in said product a poisonous ingredient which may render said product injurious to health?

3. Is the caffeine contained in said product a deleterious ingredient which may render said product injurious to health?

4. Has the product attached in this cause been mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed?

5. Are there any substances known as "coca" and "cola" under their own distinctive names?

6. Is the name "coca-cola" as used on the labels on the packages containing the product attached a representation of the presence in said product of any substances known as "coca" and "cola"?

7. Does said product contain any elements or substances derived from the coca leaves and cola nuts?

8. Is said product an imitation of any other article?

9. Is said product offered for sale under the distinctive name of any other article?

10. Is "coca-cola" the distinctive name of the food product in controversy in this case?

11. Do the labels on the packages containing said pro-

duct bear any statement or pictorial design which is false or misleading in any particular?

CANDLER, THOMPSON & HIRSCH,
PRITCHARD & SIZER,
Attorneys for Defendant.

Libellant in lieu thereof tendered the following issues:

The libellant in lieu of the issues of fact tendered by Claimant (and reserving exceptions heretofore taken) hereby presents the following as proper issues to be submitted to the jury:

1. Was the caffeine contained in the product seized a poisonous ingredient?

2. Was the caffeine contained in said product a deleterious ingredient which may render or might have rendered said product injurious to health?

3. Had the product seized herein been mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority thereof was concealed?

4. Were there such substances as "coca" and "cola" known under their distinctive names at the time this proceeding was begun?

5. Was the name "Coca Cola" as used on the labels on the packages containing the product seized taken in connection with the pictorial design on said packages a representation of the presence in said product of any substances known as "coca" and "cola"?

6. Did said product contain any ingredient or substance of appreciable quantity and desirable quality derived from the coca leaves and the cola nuts?

7. Was said product an imitation of any other article or articles?

8. Was said product offered for sale under the distinctive name of any other article or articles?

9. Is "Coca Cola" the distinctive name of the product in controversy in this case under which said product without any substantial change of formula has been known and sold for twenty years?

J. B. COX,
U. S. District Attorney.

W. B. MILLER, Special Counsel.

Filed April 3, 1911.

R. M. WATKINS, D. C.

The Government introduced the following testimony:

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TENNESSEE, SOUTHERN DIVISION, AT CHATTANOOGA.

UNITED STATES *versus* FORTY BARRELS AND TWENTY KEGS OF COCA-COLA, THE COCA-COLA CO., *Claimant and Intervenor.*	No. .....

APPEARANCES:

FOR THE GOVERNMENT:

HON. J. B. COX, *District Attorney.*

HON. W. B. MILLER, *Special Assistant to District Attorney.*

MR. A. H. MCCONNVILLE.

FOR THE DEFENDANT:

MR. HAROLD HIRSCH.

MR. J. B. SIZER.

MR. ASA WARREN CANDLER.

MR. R. H. WILLIAMS.

Upon the trial of this case, beginning on this March 13, 1911, at 9 o'clock a. m., before the Hon. Edward T. Sanford, United States District Judge, the following proceedings were had, to-wit:

The Court: Is the Government ready for trial?

Gen. Cox: Yes.

The Court: Are you ready for trial, Mr. Sizer? Does the defendant announce ready?

Mr. Sizer: The defendant is ready.

The Court: We will now proceed to empanel a jury. I will ask the marshal to call those summoned around into the jury box.

(Thereupon the Marshal called the following persons who were seated in the jury box: L. N. Duncan, J. J. Woody, T. E. Standifer—(upon the calling of this juror he stated that his name was J. E. instead of T. E. Standifer)—Jasper Anderson, Frank Simmons, Sig. Klaus, J. A. Maybray, W. M. Springfield, William Ball, Joseph Hatfield, B. F. Sykes, W. C. Lomenick, J. B. Shipley and George W. Plumlee.)

The Court: We will have the entire panel sworn before examination is made of them. The first twelve men will occupy the box.

(The entire panel of sixteen men was sworn.)

The Clerk: Your Honor, there is the jury in the box.

The Court: You may now call the names of these twelve men, and as their names are called they will answer as to the county where they are from.

The Clerk: All right, Your Honor.

(The clerk then called the jury, the jurors answering with the counties as follows: L. N. Duncan, Marion county; J. J. Woody, Polk county; J. E. Standifer, Sequatchie county; Jasper Anderson, Marion county; Frank Simmons, Polk county; Sig. Klaus, Hamilton county; J. A. Maybray, Hamilton county; W. M. Springfield, Hamilton county; William Ball, Bradley county; Joseph Hatfield, Sequatchie county; B. F. Sykes, Rhea county; W. C. Lomenick, Hamilton county; J. B. Shipley, Hamilton county; G. W. Plumlee, Hamilton county.)

The Court: Is the Government satisfied with the jury?

Mr. Miller: We would like to ask Mr. Woody if he is engaged in the sale of Coca-Cola.

Juror Woody: No, sir; never have sold it.

Mr. Miller: You conduct a store, but have never sold any Coca-Cola?

Juror Woody: No, sir; not a thing.

Mr. Miller: Have not formed or expressed any opinion about the case at all?

Juror Woody: No, sir.

Mr. Miller: Now, Mr. Anderson, are you engaged in the sale of Coca-Cola?

Juror Anderson: No, sir.

Mr. Miller: Not sold at your store at all?

Juror Anderson: No, sir.

Mr. Miller: Mr. Ball, is your father's name William Ball? (No response.) Is Mr. Ball on the jury?

The Clerk: Mr. William Ball is on the jury.

Mr. Miller: Is your father's name William Ball?

Juror Ball: Yes, sir.

Mr. Miller: Are you under indictment in the State Court at Cleveland?

Juror Ball: I am not, sir.

Mr. Miller: Have never been?

Juror Ball: No, sir.

Mr. Miller: No indictment pending against you, then?

Juror Ball: No, sir.

Mr. Miller: Mr. Lomenick we will excuse.

The Court: Who did you say?

Mr. Miller: Mr. Lomenick — W. C. Lomenick.

(Juror Lomenick excused on challenge by Government)

The Clerk: J. B. Shipley.

The Court: What county are you from?

Juror Shipley: Hamilton.

The Court: Is the Government satisfied?
Mr. Miller: We will excuse Mr. Duncan.
The Court: Mr. Duncan is excused.
(Juror Duncan excused on challenge by Government.)
The Clerk: George W. Plumlee.
The Court: What county are you from?
Juror Shipley: Hamilton.
Mr. Sizer: There seem to be two men on the jury whose names were not drawn. It seems that Mr. B. F. Sykes appears as a juror, whereas the man drawn was James Sykes. I don't know how that substitution came to be made, but evidently it was not done by the jury commission.
The Court: B. F. Sykes was drawn by the jury commission.
Marshal Crumbliss: James Sykes was certified to me and I sent the summons for James Sykes. Afterwards this correction was made by one of the men in the office, stating that the clerk at Chattanooga had called him up and had called up the attorney-general ——
Gen. Cox: My attention was called to the fact that it was a misnomer.
Mr. Miller: There is no James Sykes at all, as I understand that the sheriff of Rhea county reported that to the clerk. The clerk is here and can answer.
The Court: Who did the jury commissioners draw?
Mr. Miller: James Sykes, and there is no such man.
The Court: I do not think Mr. B. F. Sykes then corresponds to the name of James Sykes, so he may stand aside unless resummoned. It may be necessary to call somebody, then he may be summoned. I don't think he is properly on the panel. Call the next juror.
The Clerk: The next one is Mr. Charles H. Allen.
The Court: Take the box, Mr. Allen. Where are you from, Mr. Allen?
Juror Allen: Bradley county.
Mr. Sizer: Another man, W. B. Miller, was drawn as a juror, and the marshal called the name of M. B. Miller.
The Court: He did not come; he never got notice of it.
Mr. Sizer: I thought that he answered.
The Court: The marshal has stated that he did not receive any return of the notice.
Mr. Sizer: Is there a Mr. Miller on the jury?
The Court: No.
Mr. Sizer: Mr. Anderson, are you in any way prejudiced against the use of Coca-Cola, or coffee or tea?
Mr. Miller: I object to the form of that question, as to coffee or tea.
Mr. Sizer: Well, I want to know.

The Court: I overrule the exception. I think he can inquire for the purpose of peremptory challenge without holding it to be a ground of challenge.

Juror Anderson: What was the question?

Mr. Sizer: I asked him whether he had ——

The Court: You asked him whether he had any prejudice against tea or coffee?

Mr. Sizer: I ask you, Mr. Anderson, whether you have any prejudice against the use of coffee or tea or Coca-Cola, any of them?

Juror Anderson: Well, not in any particular — not particularly, no.

Mr. Sizer: Have you any in general?

Juror Anderson: Well, I don't know whether I can answer the question just exactly like you want it or not. I think such things are limited to the individual who uses them; as to whether he wants to use them or not to use them. I am not a governor in those things, and I don't think I ought to have the right to say just who should or who should not, for either way it is all right with me. If they don't want them it is all right. I would not consider that I was prejudiced against either one.

Mr. Sizer: Well, are you opposed to the use of those substances, any of them?

Juror Anderson: No.

Mr. Sizer: None of them?

Juror Anderson: No, as I tried to explain, I don't know whether I could give a satisfactory answer or not. My opinion has always been it ought to be left to the individual using them to decide for himself.

Mr. Sizer: We excuse Mr. Anderson.

The Court: Call around another man.

Marshal Crumbliss: I will call Mr. J. N. Toler.

The Court: Mr. Toler, what county are you from?

Juror Toler: Hamilton.

The Court: Is the Government satisfied?

Mr. Miller: You have a son that is engaged in the sale of Coca-Cola?

Juror Toler: Yes.

Mr. Miller: You have more or less thought of this question since you were summoned as a juror?

Juror Toler: No more than I ever did in my life. I never used it.

Mr. Miller: Well, he is a member of your family?

Juror Toler: Yes.

Mr. Miller: Well, we will excuse Mr. Toler.

Mr. Sizer: I don't think the Government has but two challenges.

Mr. Miller: In a proceeding in rem I think we have.

The Court: The general rule is three peremptory challenges on each side. You are excused, Mr. Toler. Summon from the bystanders, Mr. Marshal, some three or four; you are not limited to the immediate court room. If you do not find persons whom you can summon here you may go out on the street and select good and intelligent men who will make good jurors, and ask them particularly if they are interested in this question.

Marshal Crumbliss: I see one man I know personally, Mr. A. J. Childress.

The Court: Take a seat in the box, Mr. Childress. Where are you from, Mr. Childress?

Juror Childress: Kingston, Roane county.

The Court: Have you served on a federal, grand or petit jury within two years?

Juror Childress: Never in my life.

The Court: And you know nothing about this case?

Juror Childress: No, sir.

The Court: The condemnation of Coca-Cola?

Juror Childress: No, sir.

The Court: Are you interested in any way in the Coca-Cola business?

Juror Childress: No, sir. I have stayed in a store where they sold Coca-Cola, but I have never been interested in it.

The Court: You sell it now?

Juror Childress: I ain't in business now.

The Court: You are not in business now?

Juror Childress: No, sir.

The Court: Is the Government satisfied?

Mr. Miller: Are any of you gentlemen on there (the jury) engaged in the sale of Coca-Cola in any way?

Juror Allen: Yes, sir.

Mr. Miller: You are from Cleveland?

Juror Allen: Yes.

Mr. Miller: We submit that is cause.

Mr. Sizer: We do not think it is.

The Court: I think that is cause of challenge and excuse the juror. Call another man, Mr. Marshal.

Marshal Crumbliss: I will call around E. E. Young.

The Court: What county are you from?

Juror Young: Hamilton.

The Court: Have you formed or expressed any opinion about this case?

Juror Young: No, sir.

The Court: The condemnation of Coca-Cola?

Juror Young: No, sir.

The Court: Have you served on a federal, grand or petit jury within two years?

Juror Young: I served the first term that you held.

The Court: That was 1908; that is more than two years ago.

Juror Young: The first term you held I served here; I was a picked-up juror.

The Court: That does not disqualify you as a juror. Are you interested in the Coca-Cola business in any way; in the sale or purchase of it?

Juror Young: No, sir.

The Court: Is the Government satisfied?

Mr. Miller: Have you formed or expressed any opinion about the merits of this case?

Juror Young: No, sir.

Mr. Miller: You have not, you say?

Juror Young: How is that?

Mr. Miller: You have not formed any opinion in any way?

Juror Young: No, sir.

Mr. Miller: You feel yourself competent to sit in a case and determine as to the result as to the proper —— determine as to results respecting the adulteration and misbranding of Coca-Cola?

Juror Young: Yes, I am not engaged in the sale of it.

Mr. Miller: You have no connection with it in any way?

Juror Young: No.

The Court: My attention has been called to the fact that Roane county is not in this division, and there is a juror from Roane county on the jury and he will be excused.

Juror Childress: I live here now. I just recently came from Roane county.

The Court: You are now a resident of this county?

Juror Childress: Yes, sir: I live in Hill City.

Gen. Cox: Roane county is in the Northern division.

The Court: Yes.

Gen. Cox: Is the last gentleman from Roane county?

(No response.)

The Court: Is the government satisfied?

Mr. Miller: Yes.

Mr. Sizer: Mr. Childress, how long have you lived in Hamilton county?

Juror Childress: I came from Hill City. My folks came in December and I came last Tuesday.

Mr. Sizer: I submit that he has not been a resident of Hamilton county long enough to qualify him.

The Court: When did you come?

Juror Childress: I came last Tuesday.

The Court: Are you going to live here permanently; make this your home?

Juror Childress: Yes, sir.

The Court: You sold out in Roane county?

Juror Childress: What did you say?

The Court: I say, you sold your home up in Roane county?

Juror Childress: No, sir.

The Court: You did not sell it?

Juror Childress: I rented it.

The Court: You rented it?

Juror Childress: Yes, sir.

Mr. Miller: You and your family are living here, and they have been living here since December?

Juror Childress: Yes, sir.

The Court: Of course, the same qualifications are required here as under the State statute. What is the State statute?

Mr. Sizer: The statute is, as I recall it, that he has been a resident of the county and of the State a certain length of time, it occurs to me that until he has been a resident of the county giving him the right of qualifying him to vote as a resident of the county, he would not be competent to act as a juror.

Gen. Cox: I think the question would be whether he was a householder or a freeholder. If he is not either one, I don't believe he would be competent. I think that is the rule in the State Court, and if he came here with the intention of living and is a householder or a freeholder in this district, it would be sufficient to make him a competent juror. Are you a householder?

Juror Childress: No, sir.

Gen. Cox: You are a freeholder—— I say, are you a householder or a freeholder?

Juror Childress: Yes, sir.

Gen. Cox: In this district?

Juror Childress: In Hill City.

Gen. Cox: You own a house?

Juror Childress: No, we live in a rented house.

The Court: Do you rent it?

Juror Childress: My wife rented it. Of course, it is the same. She came down first; she rented from my son-in-law; she came down here and we are all together.

The Court: Who does the renting—who pays the rent?

Juror Childress: He ain't charging us no rent right now.

Gen. Cox: That would make him a householder, then.

The Court: I didn't understand; it is your son-in-law's house?

Juror Childress: Yes.

The Court: You are just living there with your son-in-law, in your son-in-law's house?

Juror Childress: Yes; of course we aim to pay rent; there has nothing been said about rent that I know of right now.

The Court: You made no arrangement in reference to rent?

Juror Childress: He told my wife to come, and if she wanted to pay rent she could, and if she didn't she need not.

Mr. Miller: Who lives in the house besides you and your family?

Juror Childress: No one.

Mr. Miller: You and your family occupy the house alone?

Juror Childress: Yes.

The Court: Do you own any property in Roane county?

Juror Childress: Yes.

The Court: I think this juror is qualified.

Mr. Sizer: What business are you engaged in, Mr. Childress, now?

Juror Childress: I am not doing anything now.

Mr. Sizer: How did you happen to be moving down here?

Juror Childress: Well, I lived in Kingston, and Kingston is drying up, and my boys wanted to go to work and come to Chattanooga.

Mr. Sizer: How did you happen to come up here this morning?

Juror Childress: I just met Mr. Brown down there. I had got acquainted with him, and he said he was going up to the federal court; that they are going to have a lawsuit up there; and I said I wanted to see Pat Evans; and that is how I came to come.

Mr. Sizer: Do you know anything about this substance Coca-Cola?

Juror Childress: No, sir; I do not.

Mr. Sizer: Have you any prejudice against the use of tea or coffee?

Juror Childress: I have not.

Mr. Sizer: Do you drink both of them?

Juror Childress: I am a dear lover of coffee; I don't care for tea.

Mr. Sizer: Do you ever drink Coca-Cola?

Juror Childress: I never drank a bottle of Coca-Cola in my life.

Mr. Sizer: Well, we will excuse him.

(The juror was challenged peremptorily by the defense.)

The Court: Call another man, Mr. Marshal.

Marshal Crumbliss: I will call Mr. R. S. Brown.

The Court: Mr. Brown, take your seat in the jury. What county are you from?

Juror Brown: Hamilton.

The Court: You say Hamilton?

Juror Brown: Yes, sir.

The Court: Have you served on a federal, grand or petit jury within two years?

Juror Brown: No, sir.

The Court: Have you formed or expressed any opinion about this present suit between the Government and the Coca-Cola people?

Juror Brown: I have not.

The Court: Are you interested in the Coca-Cola business in any way? Do you sell it?

Juror Brown: No, sir.

The Court: Or bottle it?

Juror Brown: No, sir.

The Court: Is the Government satisfied?

Mr. Miller: What is the name of the juror?

The Court: His name is R. S. Brown.

Mr. Miller: We are satisfied.

The Court: Is the claimant satisfied?

Mr. Sizer: We are satisfied.

The Court: The jury now may be sworn, Mr. Clerk.

(Thereupon the Clerk swore the jury in this case.)

The Court: You may proceed with the case, gentlemen.

Mr. Miller: On page 2 of the Amended Information the date is stated as the 18th of October, 1908, whereas it should be October, 1909, and it is a technical error, and I would like to insert the numeral "9" for "8."

The Court: Well, you may make that change.

Mr. Miller: On page 3 of the Libel in describing the insects of various kinds, the flies, spiders, and mice, we want to add "bees."

Mr. Sizer: We object to that. Why not say "all other insects"?

Mr. Miller: I would like to add that.

Now, on page 4 the averment of the Libel is that there are and were such substances popularly known as "Coca" and "Cola." In view of the fact that the issues, a copy of which was submitted to us on Friday afternoon, will be submitted here, we ask to strike the word "popularly."

The statute does not include it and it is mere surplusage, and hence we ask to strike it and aver: "Such substances known as Coca and Cola."

The Court: Is there any objection to that amendment?

Mr. Sizer: I do not think, if Your Honor please, that amendment is hardly proper at this stage of the proceedings, inasmuch as the averment distinctly was: "Such substances ordinarily and popularly known."

Mr. Miller: Not "ordinarily."

Mr. Sizer: I think it would be incumbent upon the Government to show that, anyway, and we have joined the issue on the allegation as made and have prepared issues to be submitted to the jury.

Mr .Miller: That is just what I was coming to. The other point is that the statute does not embody that, Your Honor.

The Court: Yes. What section of the Food and Drugs Act have you in mind?

Mr. Miller: Section 7 and section 8, I believe it is, subsection 1, first — no, section 8, sub-section 2, and the first clause under sub-section 2: "If it be an imitation of or offered for sale under the distinctive name of another article." Now, I don't understand that there is anything there that would make it obligatory upon the Government to prove that this other article was popularly known as the other article, or whether it is under the name of the other article.

The Court: You aver this fact, distinctive name — of "Coca" and "Cola"?

Mr. Miller: Yes.

Mr. Sizer: I don't think you do. What is your allegation? You do not aver that.

Mr. Miller: Labeled on each package, the label containing the statement:

> "Delicious and refreshing Coca-Cola, manufactured by The Coca-Cola Company. We guarantee the contents of this package to comply with the Food and Drugs Act of June 30, 1906. Our serial Number is 3324."

The expression "Coca Cola" thus employed was and is a representation of the presence in said food product of the substances Coca and Cola. There are and were such substances popularly known as Coca and Cola — there is no distinctive name. "Popularly" — there I have alleged more than need be alleged in the declaration.

The Court: You wish to strike out the word "popularly"?

Mr. Miller: We move to eliminate that word "popu-

larly," whether it is popularly known, or scientifically known, or how. The statute makes no provision in that behalf, whether it is known under a distinctive name. I think it is a question of whether it is known under a distinctive name, that is what the statute requires, and that is what it is obligatory upon the Government to prove.

Mr. Sizer: It would not be a distinctive name unless it was popularly known.

The Court: Hand me the paper. I will allow you to strike the word "popularly" provide you also strike the word "and" so as to make it read: "There are and were such substances known as Coca and Cola under their own distinctive names."

Mr. Miller: Yes.

Mr. Sizer: In view of the fact that that amendment is made right at the trial, may it please Your Honor, I suppose we may have the right hereafter to insist that the allegation as now made is not sufficient.

The Court: You may make that question now.

Mr. Sizer: We have already suggested our idea, may it please Your Honor, that in order to have a distinctive name a substance must be popularly and commonly known by that name. This act is for the protection of the public and that was the view of counsel for the Government at the outset, and unless they could aver and could show that a substance is popularly known by a certain name it has no distinctive name, and the averment is that this article has a distinctive name and that is the objection we have to the amendment.

Mr. Miller: In drawing that amended libel it was intended to embrace the original libel, and I think filed by General Penland hurriedly and proof of whether or not an article is popularly known may be circumstance to show it has a distinctive name, but it is by no means the only circumstance of proof, and the statute having provided what shall be a violation of the Act, and not including the term "popularly," I cannot see that it is necessary and we eliminate the word "and" after "Cola" as Your Honor indicated a moment ago.

The Court: You may make the amendment and you may have leave to amend your intervening claim or answer to correspond to it if you desire and take time for that purpose.

Mr. Sizer: We reserve an exception to the amendment, and we will amend the answer as we desire to, without waiving the exception.

The Court: That may be done, but that should be done before noon so that we may know definitely; it should be

done before the issues are made up. You had better take time to amend your answer, Mr. Sizer.

Mr. Sizer: Let me see our answer.

The Court: If you wish a consultation on that subject, you may take a recess.

Mr. Sizer: Very well.

The Court: We will take a ten-minute recess, or longer, if you need it.

Mr. Sizer: All right.

(Thereupon the Court took a recess for ten minutes.)

AFTER RECESS.

The Court: Are you ready with your amendment?

Mr. Sizer: Yes, Your Honor, we amend the answer so as to make it conform to the amended information. We originally denied in the language of the information there are such substances popularly known as "Coca" and "Cola," and we amend that by saying that there are no such substances known as "Coca" and "Cola" under their own distinctive names.

The Court: Prepare the order, Mr. Miller, showing that amendments are allowed, and allow the amendment to be made on the face of the pleadings. Incorporate into the order how it read before and how it will read afterwards so you will get it. You may proceed with the case. Read the pleadings.

Mr. Miller: All right.

The Court: Before doing that, you might call the witnesses on both sides and let them be sworn.

Gen. Cox: Before reading the information?

Mr. Sizer: We have not got a list of our witnesses. We can prepare a list and let those who are present be sworn.

Mr. Miller: We are in the same attitude. We have here first Mr. B. J. Dobbs, Mr. J. L. Lynch, Dr. J. F. Fuller, H. C. Fuller, Dr. F. P. Morgan, Dr. W. O. Emery, Dr. H. W. Wiley, and Dr. L. F. Kebler; also Dr. W. J. Boas and Dr. H. H. Rusby.

The Court: All right; let those be sworn.

Mr. Sizer: We have here Doctor Wesener, and some others.

The Court: The witnesses may be sworn.

(Thereupon the witnesses present in court were sworn by the clerk.)

The Court: Is the rule demanded?

Mr. Miller: Not by us.

Mr. Sizer: We do not care for it.

Gen. Cox: If the Court please, I will read the information.

The Court: I understood from counsel that they were to incorporate all of the original pleadings and amendments in one pleading that would embrace everything.

Gen. Cox: They are incorporated — that has been done.

The Court: And you may read just that last pleading that incorporates that.

Gen. Cox: This is the amended information, Your Honor, leaving off the caption. (Reading):

"This amended Libel of the United States of America in and for the Southern Division of the Eastern District of Tennessee, prosecuted by the United States Attorney in and for said District, respectfully represents and shows:

I.

"The Original Libel herein was filed by the United States of America through the District Attorney in and for the District aforesaid, and prayed seizure for condemnation of 40 barrels and 20 kegs of a certain article of food or food product, purported and represented to be 'Coca Cola'. Said condemnation was sought under Act of Congress commonly known as 'Food and Drugs Act'.

"Pursuant to the prayer of said Original Libel, seizure of said food product was had, after which The Coca Cola Company, of Atlanta, Georgia, intervened and gave bond as in such cases provided, whereupon said food product, with the exception of one keg, was released.

"Said seizure and condemnation were sought because of the matters in said Original Libel shown, all of which, together with other causes and grounds for seizure and condemnation are hereinafter set forth.

II.

"And in this behalf the United States of America, by this Amended Libel, represents that on or about the 18th of October, 1909, the Coca Cola Company, of Atlanta, Georgia, a corporation doing business in several States, and particularly in the States of Georgia and Tennessee, transported or caused to be transported for sale by an Interstate Carrier, from the City of Atlanta, Georgia, to Chattanooga, Tennessee, consigned to Coca Cola Bottling Works alone, or to it in connection with and for the use of itself and one or more other persons, partnerships or corporations, a consignment of 40 barrels and 20 kegs of said food product, Coca Cola.

"Said 30 barrels and 20 kegs of Coca Cola thus transported for sale were each and all labelled.

'Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada, Havanah, Cuba, Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the Food and Drugs Act of June 30, 1906. Our serial number is 3324.

'The Coca Cola Company,

'By Asa G. Candler, Pt.'

"Said consignment of 40 barrels and 20 kegs was an Interstate shipment and was received at Chattanooga on or about October 20, 1909, and on or about said date was seized under the original Information or Libel filed herein, and at the time of filing such original Information and of such seizure, said consignment of 40 barrels and 20 kegs of Coca Cola remained unsold or in original unbroken packages, in Chattanooga, Tennessee.

"(a) Said product contained an added ingredient, caffein, which is and is a poisonous ingredient, and might concealed, in that said food product, in the mixing and have rendered and may render said food product injurious to health.

"(b) Said product contained an added ingredient, caffein, which was a deleterious ingredient, and may render or might have rendered said food product injurious to health.

"Said food product, as above stated and described, was adulterated under the Act of Congress aforesaid, in this, caramel and other coloring substances and by the use of certain flavoring substances consisting of oil of lemon, sugar, syrup and lime juice, whereby damage or inferiority of the mixture (the food product, Coca Cola) was

"(c) Said food product had been mixed, colored, powdered, coated or stained by the use of sugar coloring, preparation, contained germs emanating from the body, perspiration and spittle of the employes of the Coca Cola Company, engaged in mixing and making said food product; and it also contained germs due to divers unsanitary conditions, such as overhanging cobwebs, dirty factory, machinery, apparatus and appliances, insects of various kinds, including flies, bees, spiders and mice: Wherefore, and by reason of said germs and other substances above enumerated, together with the unsanitary surroundings and conditions incident to manufacture, said food product was of a damaged and inferior quality, which damage and inferiority was concealed by the flavoring and coloring aforesaid.

SECOND COUNT.

"And said The Coca Cola Company of Atlanta, Georgia,

transported or caused to be transported for sale the 40 barrels and 20 kegs of said food product, Coca Cola, as in the first count hereof shown, to Coca Cola Botting Works, Chattanooga, Tennessee, alone, or for itself and another or others, labelled as in the first count shown.

"And said consignment and transportation, made for the purpose of sale, was received by the consignee or consignees, one or all, on or about October 20, 1909, and on or about said date was seized under the Original Information filed herein, and at the time of such filing and seizure, said 40 barrels and 20 kegs remained unloaded, unsold or ir original unbroken packages, in Chattanooga, Tennessee.

"The shipper was a corporation, and for a number of years past engaged in the sale of said food product, and the said product thus transported and seized was misbranded in violation of the Food and Drugs Act of June 30, 1906, passed by Congress, in this,

"(1) The label on each package, among other things contained the statement 'Delicious and Refreshing Coca Cola.' The expression 'Coca Cola' thus employed was and is a representation of the presence in said food product of the substances Coca and Cola. There are and were such substances known as Coca and Cola under their own distinctive names, but said food product 'Coca Cola' contained no Coca and little, if any, Cola.

"Therefore, said food product is (1) an imitation of the articles of substances Coca and Cola, and (2) was offered for sale under the distinctive name of said two substances Coca and Cola.

(2) Each label on said barrels and kegs bore not only the said statement 'Delicious and refreshing Coca Cola,' among other things, but also a pictorial design of Coca leaves and Cola nuts, which was and is a suggestion and representation of the presence of Coca and Cola in said food product 'Coca Cola.' The Coca leaves were thus represented to be the leaves of the Coca plant, and the Cola nuts to be the fruit of the Cola plant.

Wherefore, said pictorial design was a representation and suggestion of the presence of both Coca and Cola in said food product, when in truth it did not contain any Coca and contained little, if any, Cola in its composition, and thus said statement and pictorial design appearing on said labels and packages were and are false and misleading statements and designs regarding the ingredients and substances contained in said barrels, kegs and product.

III.

"WHEREFORE, The United States of America prayed in the original Libel that process issue and that the United States Marshal of this District be commended to seize the barrels and kegs aforesaid for condemnation, confiscation and to be dealt with as the law directs and this Honorable Court might determine, which prayer is here and now adopted and renewed, and the Honorable Court is further asked to proceed as in cases of admiralty, so far as is applicable, and that by appropriate order the article of food and food product aforesaid be condemned at the suit of this libelant, according to Act of Congress, and that the intervenor and claimant be charged with all the costs of this cause and required to pay such further sums and penalties as warranted by Statute.

"And libelant further prays for such other, further and general relief as the nature of the case may require."

Signed and sworn to.

Mr. Sizer: The answer of the defendant, gentlemen of the jury,—(Reading.)

I.

"Defendant admits the averments in paragraph I of said amended information.

II.

"Defendant admits that it is a corporation as alleged; that is shipped, as averred, forth barrels and twenty kegs of a food product, known as Coca-Cola, and that said forth barrels and twenty kegs were each and all labelled as follows:

> 'Delicious and refreshing Coca-Cola, manufactured by The Coca-Cola Company, Atlanta, Toronto, Canada, Havana, Cuba, Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30, 1906. Our serial number is 3324.
>
> 'THE COCA-COLA COMPANY,
>
> 'By Asa G. Candler, Pt.'

"It is admitted that said consignment was an interstate shipment; that it was received by the consignee in Chattanooga, Tennessee, on or about the date stated in the information; and that it remained in the original unbroken packages, in Chattanooga, Tennessee, and is the possession of the consignee at the time it was seized by the Marshal under the attachment issued in this cause.

"(a) It is admitted that said food product contained as one of the ingredients, a small proportion of caffeine, but it is denied that the caffeine as so contained was or is

an added ingredient; and it is denied that the caffeine was or is a poisonous ingredient, which might have rendered or may render said food product injurious to health.

"(b) It is denied that the caffeine as so contained was or is an added ingredient, and it is denied that the caffeine as contained in the food product was or is a deleterious ingredient, which may render or might have rendered said food product injurious to health.

"(c) Defendant denies each and every averment contained in sub-section (c) of Paragraph II of said amended information."

That expression is the one that alleges that we have spiders and mice and similar insects in this compound, and that is it inferior and damaged, and things of that kind.

Mr. Miller: Includes the bees.

Mr. Sizer: Including bees and mice. (Continuing reading.)

III.

"(1) Defendant denies that the expression 'Coca-Cola,' as used on the labels on said packages, was or is a representation of the presence in said food product of the substances Coca and Cola; and denies that there are such substances known as Coca and Cola under their own distinctive names. But said product does contain certain elements or substances derived from coca leaves and cola nuts.

"(2) Defendant denies that said product is or was an imitation of, or is or was offered for sale under the distinctive name of any other article."

The Court: That is not in issue. Is there any allegation that it is?

Mr. Sizer: That it is an imitation.

The Court: I did not catch that.

Mr. Sizer: Yes, that it is an imitation of and sold under the distinctive name of another article.

Mr. Miller: Under sub-section I, count two.

Mr. Sizer: (Reading.)

"(1) Defendant denies that the labels on said barrels and kegs bear any statements or pictorial design regarding the ingredients and substances contained therein which are false or misleading in any particular.

"(4) And for further answer, defendant says that the name of said food product, as contained on the labels aforesaid, towit, 'Coca-Cola' is the distinctive name of the said product, under which said product is now known and sold, and has been known and sold for more than twenty years past, as an article of food; that said food product is

a mixture or compound, which does not contain any added poisonous or deleterious ingredient, and is not an imitation of or offered for sale under the distinctive name of any other article; and that said name is accompanied on the same label with a statement of the places where said article is manufactured or produced.

"Wherefore, defendant pleads and says that said article is not to be deemed adulterated or misbranded, under the provisions of said Food and Drugs Act of June 30, 1906.

"(5) Each and every allegation of said amended information not hereinbefore specifically admitted or denied is now denied."

That is sworn to by Mr. Asa G. Candler.

President of the Coca Cola Company.

The Court: I understood that counsel has prepared issues.

Mr. Miller: We understand, your Honor, that under admiralty rules that an issue is supposed to be—that is, joined with us.

The Court: I meant, issues of fact. I understood from the statement that counsel had prepared issues of fact to be submitted to the jury.

Mr. Sizer: I did prepare some issues of fact, which I gave Mr. Miller notice of last week.

I confess I am not very clear as to just how a case of this kind should go to the jury. As far as I have been able to gather from the opinions that I have read, arising under this Pure Food Law, it does not seem that it has been the practice to submit issues of fact, but the language of the Act is this—Section 10 provides for the institution of condemnation proceedings and the last sentence of that section is this: (Reading.)

> "The proceedings of such libel case shall conform as near as may be to the proceedings in admiralty. Either party may demand trial by jury on any issue of fact joined in such case, and all such proceedings shall be sued out of as in the name of the United States."

In order that we may conform to the requirement that is required, that issues may be submitted, we have prepared certain issues. We have prepared—I take it it is not necessary as a whole that all these separte issues shall go to the jury; I don't know whether Mr. Miller has any objection to make to them or not.

Mr. Miller: We will have certain objections to make, but at present, if your Honor will simply withhold judgment, I have no objection.

The Court: In your view of the case, how much time is

to be spent on the general issues of the case as distinguished from specific issues?

Mr. Miller: I think Mr. Sizer has very correctly stated what has been the practice heretofore, but I must say that my own crude interpretation of this statute was in accordance with his and that is that special issues are proper to be submitted.

The Court: It does not say that either party may demand trial by jury, merely—

Mr. Miller: (Interrupting.) For that reason I cannot conceive at least that it is an improper practice, and it strikes me that it might be a very proper one in the circumstances of the case. The only point is we shall disagree upon some of those issues ultimately.

Mr. Sizer: Shall I read the issues?

The Court: Yes, you may continue.

Mr. Sizer: (Reading.)

"Now comes the defendant by attorney and tenders the following statement of facts arising information and the answer thereto, and moves that they be submitted to the jury for determination:

"1. Is the caffeine contained in the food product coca-cola an added ingredient?

"2. Is the caffeine as contained in such product a poisonous ingredient which may render said product injurious to health?

"3. Is the caffeine contained in said product a deleterious ingredient which may render said product injurious to health?

"4. Has the product attached in this cause been mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed?

"5. Are there any substances known as 'coca' and 'cola' under their own distinctive names?

"6. Is the name 'coca-cola' as used on the labels on the packages containing the product attached a representtion of the presence in said product of any substances known as 'coca' and 'cola?'

"7. Does said product contain any elements or substances derived from the coca leaves and cola nuts?

"8. Is said product an imitation of any other article?

"9. Is said product offered for sale under the distinctive name of any other article?

"10. Is 'Coca-Cola' the distinctive name of the food product in controversy in this case?

"11. Do the labels on the packages containing said product bear any statement or pictorial design which is

false or misleading in any particular?

Mr. Miller: Your Honor of course knows that this proceeding shall be conducted as near as may be in accordance with the admiralty practice, and Benedict lays down this rule of practice: (Reading.)

Our courts of equity, our local courts, usually submit these issues and determine them pending the trial, but finally decide on them prior to giving them to the jury, but not in advance of the case, and I understand that practice will be agreeable to the other side, and it certainly will be to us.

The Court: The motion will be taken under advisement and not acted on at this time. If you raise any objections, you may offer them and give notice to the opposing counsel.

Mr. Miller: We will be glad to do that.

The Court: There is one averment of the libel, as I got it, in reference to cola, merely stating in the alternative that it had little, if any, cola. That would be an averment of fact, that it contained none, would it? There would be no issue to be submitted.

Mr. Miller: I don't think there would. I don't think there would be an issue arising on that point.

The Court: Well, eliminate that one matter within the pleadings now and later at the proper time, consider that. Now, gentlemen, you may proceed.

Mr. Sizer: I amended the petition so as to read—"Whether any substances known as coca and cola under their own distinctive name."

Mr. Miller: We have a copy of the issue.

Mr. Sizer: And I suppose we may enter an order showing those issues were tendered and if necessary for us to make up the issues, I take it that the minutes should show that issues were tendered, whether acted on now or not. I know that is the practice in the state court where the jury is demanded, and the practice is for the parties to make up the issues under the direction of the court, and then have the minutes of the Court to show that the issues were made up and tendered, or at least offered by counsel.

The Court: You may show that in the Bill of Exceptions, that the issues were tendered. That will be sufficient, and by agreement of counsel, action by the Court will be reserved until a later stage of the case.

Mr. Sizer: That will be sufficient.

The Court: You may proceed with the case. Counsel will bear in mind the limitation on experts on any one single point.

Mr. Miller: What was that?

The Court: Counsel has been limited to ten expert witnesses on a side on any particular fact or question of expert knowledge.

Mr. Sizer: That is on any one point?

The Court: Yes; including the experts whose depositions have been taken and those who are introduced as witnesses direct, on any issue of fact on expert testimony that has been taken in the case.

Gen. Cox: That is ten witnesses, restricting it to the witnesses here, or counting in those whose depositions were taken and read?

The Court: Yes; the Court does not intimate that it is necessary to have ten; in fact, he thinks that is more than necessary, but leaves that to the discretion of counsel. Because of the importance of this case, a more liberal rule will prevail.

Mr. Miller: There is one point that I am not very clear about, and that is whether in the introduction of the witnesses, the number of experts that will be allowed on any material issue or fact raised in the case, or, whether or not experts introduced as to one fact will be counted as an expert introduced, even though he may not testify as to another fact.

The Court: No; he will only be counted on the matters as to which he testified. The Court may later on narrow that rule; but, however, on the start that number will be allowed. That does not restrict the Court from later on reducing the number.

Mr. Miller: I will now call Mr .Dobbs to the witness stand.

PLAINTIFF'S EVIDENCE.

Thereupon, W. J. DOBBS, the first witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Mr. Dobbs, what is your age?

A. Fifty-nine.

Q. You live in Chattanooga, Tennessee?

A. Yes, sir.

Q. What business are you in?

A. Wholesale grocery business.

Q. How long have you been engaged in that business, Mr. Dobbs?

A. Thirty-seven years.

Q. What connection did you have, if any, with the firm of Trigg, Dobbs & Company, in 1909, in October and September of that year?

A. I was one of the firm.

Q. That was the partnership, was it?

A. Yes, sir.

Q. What connection did that firm have, if any, with the Coca-Cola Company, of Atlanta, Georgia, or the Coca-Cola Bottling Works, of this city.

A. We handled barrel goods here to the soda fountains.

Q. What was the arrangement by which barrel goods were received and distributed by your firm?

A. Well, they were just bought goods and furnished out to the trade.

Q. You bought the barrels of Coca-Cola?

A. Yes, sir, of the Coca-Cola Company of Atlanta.

Q. That was a Coca-Cola syrup that is dispensed at the fountains?

A. Yes, sir.

Q. Then you would distribute it to the local dispensers?

A. At the fountain, yes, sir.

Q. Now, how was that mixture of Cola-Cola syrup usually shipped, Mr. Dobbs?

A. In barrels and in kegs.

Q. To whom did you give the order when you would desire this Coca-Cola syrup?

A. To Atlanta, the Atlanta Coca-Cola Company.

Q. The Coca-Cola Company at Atlanta?

A. Yes, sir.

Q. Then did you receive an invoice for this from the Coca-Cola Company in Atlanta?

A. Yes, sir.

Mr. Sizer: Oh well, we will admit it was an interstate shipment.

Mr. Miller: Do you admit there was a transportation of this particular seizure by interstate carrier for sale?

Mr. Sizer: We have admitted the allegation of your information, as I recall it, on that subject, however, you can go on and prove it.

Mr. Miller: I am quite willing to accept your admission and not prove it, but we have to prove it in the language of the statutes.

The Court: Do you admit or deny that it is an interstate shipment?

Mr. Sizer: I think we admit specifically that it was an interstate shipment.

The Court: Under the circumstances alleged in the libel insofar as the character of the shipment was concerned.

Mr. Sizer: I think that is the exact language of the answer.

Mr. Miller: The point I am trying to get at is that the statutes prescribe that there shall be no interstate, I mean no transportation for sale by interstate carriers—the Courts have drawn a distinction between transportation and shipment. Their answer uses the word "shipment"—

Mr. Sizer: (Interrupting.) We will not admit anything more than the answer admits. If Mr. Miller wants to prove it, it is all right.

Mr. Miller. Your answer admits the shipment—I don't think that is in compliance.

Mr. Sizer: All right, you may go on and prove it.

Mr. Miller: Q. Mr. Dobbs, how was this merchandise transferred from Atlanta, this Coca-Cola product from Atlanta to Chattanooga, that your company received?

A. This lot of Coca-Cola was shipped in a car to the Coca-Cola Bottling Works of this city, and delivered to out trade by them, and we got part of the car and they got part of the car.

Q. If I understand you, you placed an order for Coca-Cola with the Coca-Cola Company at Atlanta?

A. Yes, sir.

Q. And in response to that order, you had an invoice of certain barrels and kegs of Coca-Cola that were said to be in the custody of the Coca-Cola Bottling Works at Chattanooga?

A. Yes, sir, put in their car; and that order was given to the Coca-Cola Company of Atlanta, and the Coca-Cola Bottling Works of Chattanooga was in Chattanooga, Tennessee.

Q. Did you or not receive any portion of that shipment from Atlanta, or that car of Coca-Cola that was transported from Atlanta to Chattanooga to the Coca-Cola Bottling Works?

A. We received the amount covered by our invoices, twenty barrels and twenty kegs.

Q. Twenty barrels and twenty kegs of Coca-Cola syrup?

A. Yes, sir.

Q. State whether or not that was received on or about the 20th or 25th of October, 1909.

A. It was hauled down to the store on the 21st or 26th, part of it came in the evening and part of it in the evening.

Q. In October, 1909?

A. Yes, sir.

Q. State whether or not these barrels and kegs that

were then hauled down purported to be in unbroken packages?

A. Yes, sir.

Q. As they were shipped or came from the Coca-Cola Company of Atlanta, Georgia?

A. Yes, sir.

Q. I will get to state if a United States Inspector came to your place of business on or about the 21st or 22nd of October, 1909, and took any samples from these barrels or kegs of Coca-Cola?

A. Yes, sir, we delivered him samples out of the shipment.

Q. Out of that shipment?

A. That was out of the particular shipment, as I understand it, that came in about that time.

Q. At the time this Coca-Cola was received, this particular lot, was your company supplied with other Coca-Cola syrup?

A. Well, as I remember, we did not have any in the house. You see we had shipped out two barrels of this before the officers got around, and only had eighteen when they came around.

Q. Was this particular lot of Coca-Cola transferred through the Coca-Cola Bottling Works, or did it come direct from Atlanta?

A. Yes, sir; direct from Atlanta.

Q. I will get you to state whether or not you met Inspector Lynch, of the United States Department of Chemistry, and if he or not took from one of those barrels and one of those kegs a portion of this Coca-Cola syrup?

A. He got samples, yes, sir.

Q. Did you point it out to him or identify it as a product that had come in?

A. Yes, sir.

Q. And what did he take these samples away in?

Q. Jugs, as well as I remember.

Q. Gallon jugs?

A. Yes, sir.

Q. Do you know whether or not the Inspector put any labels or marked on these, or do you know what he did with them?

A. I don't know what he did.

Q. That Coca-Cola was shipped here for sale?

A. Yes, sir.

Mr. Miller: You may cross-examine him, Mr. Sizer.

CROSS-EXAMINATION BY MR. SIZER.

Q. Mr. Dobbs, how long has your firm been handling Coca-Cola?

A. Why, something like ten years, you might say a little longer than that.

Q. You have sold a great deal of it in that time?

A. Yes, sir.

Q. It is a very widely known and popular beverage, is it?

A. Yes, sir.

Q. It is always known by this same name, Coca-Cola, and has always been known by that ever since you have been handling it?

A. Yes, sir.

Q. And whenever a man comes into your store to get a barrel of Coca-Cola, you know that he wants this particular product?

A. Yes, sir.

Q. In other words, so far as you know, it has always been sold by that name?

A. Yes, sir.

Q. In other words, it has not been sold by any other name so far as you know, except this?

A. No, sir, not to my knowledge.

Q. This name, as shown on this paper here, is the correct and accurate sample of the name under which that substance is sold, is it not, that, is, the name "Coca-Cola?"

A. Yes, sir.

Q. The name "Coca-Cola" is on every barrel and on all their advertising matter?

A. Yes, sir.

Q. It shows it as it is there?

A. Yes, sir.

Q. With the same peculiar form of letters and hyphen between the names of "Coca" and "Cola" that is on there?

A. Yes, sir.

Q. And the word "Trade-Mark" on the tail of the first "C" in the paper shown you?

A. Yes, Sir.

Q. And that is well recognized as the name and style of the name under which this article is sold?

A. Yes, sir.

Mr. Sizer: I want to pass this to the jury, your Honor.

The Court: All right, you may do so.

(Thereupon Mr. Sizer handed to the jury the paper which was identified by the witness.)

Mr. Sizer: We want to put this paper in evidence, your Honor.

The Court: It may be attached as an exhibit to the testimony of this witness.

(Thereupon the paper offered was marked Exhibit No. 1 to the testimony of W. J. Dobbs.)

BY MR SIZER.

Q. Mr. Dobbs, how many samples did this man, Mr. Lynch, take from these barrels of Coca-Cola?

A. I could not say how many he did get, more than one, but how many I do not remember.

Q. You do not know, of course, who Mr. Lynch was, or did not know, except he said he was a Government Inspector?

A. Well, I have known him in that capacity for several years.

Q. Now, you sell this product to wholesale dealers?

A. No, to the retail dealers.

Q. You are the wholesale dealer and you sell it to the retailer?

A. Yes, sir.

Q. But you don't sell it out in glasses yourself?

A. No, sir, never break the package.

Q. You sell it in the original package?

A. Yes, sir.

Mr. Sizer: Mr. Miller desires to ask him something. This witness can stand aside.

Mr. Miller: Just wait a moment.

The Court: Hold on, they desire to cross-examine you.

CROSS-EXAMINATION, BY MR. MILLER.

Q. If I understand, this Coca-Cola product which Mr. Lynch obtained samples of, more than one, was in original and apparently unbroken packages at the time he got them?

A. Yes, sir.

Q. Now, have you ever analyzed or had analyzed for you, the Coca-Cola mixture so as to know what was in it, Mr. Dobbs?

A. No, sir.

Q. So far as you know then, the formula may have been changed more than once—

Mr. Sizer: (Interrupting.) We object to that, your Honor. Here he has stated that he never analyzed it and that is not a proper question.

The Court: I do not think it material.

BY MR. MILLER.

Q. About the use of the hyphen between the words "Coca" and "Cola," can you tell whether or not that has

been used or not for any considerable length of time, Mr. Dobbs?

A. No, I could not, I never kept up close on that point. I know when you look at the advertisements, you see that dash.

Q. You mean that you see the words "Coca" and "Cola?"

A. Yes, sir.

Q. Well, I am asking you particularly about the hyphen between those two words.

A. Well, I don't know.

RE-EXAMINATION, BY MR. SIZER.

Q. Do you recall, Mr. Dobbs, any change in it?

A. Well, there could have been a change in it and I might not have noticed it.

Q. But the question is, I say, do you recall of ever seeing any change?

A. No. sir, I do not recall.

Q. You do not recall it?

A. No, sir.

(Witness excused.)

Thereupon J. L. LYNCH, the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Mr. Lynch, how old are you?

A. I am thirty-six years old.

Q. What connection, if any, did you sustain to the Government of the United States.

A. Food and Drug Inspector in the Department of Agriculture.

Mr. Sizer: Well, speak out a little louder.

BY MR. MILLER.

Q. How long have you served as Food and Drug Inspector, Mr. Lynch.

A. I was appointed in the spring of 1907.

Q. Have you had any official connection with the Government of the United States or any of its departments, prior to that time?

A. No, sir.

Q. State whether or not you were in the City of Atlanta, Georgia, about July, 1909?

A. I was.

Q. Mr. Lynch, were you or not at the factory of the Coca-Cola Company, the claimant in this case, during the month of July, 1909?

A. I was.

Q. About what date of the month of July, 1909, were you there?

A. The 19th. (Examining a paper.)

Q. What is the construction of that factory, that is, how many stories does it consist of?

A. A basement and two stories, two stories from the street.

Q. How is that factory surrounded on all sides? How many sides of it are—streets on, in other words.

A. Edgewood Avenue—it is a sort of triangular shaped building, Edgewood Avenue on two sides and Coca-Cola Place, and then the rear is a yard.

Q. State if you went through the factory from top to bottom while you were there?

A. Yes, sir, I did.

Q. Did you while there have any conversation with any representative of the Coca-Cola Company, and if so with whom?

A. With young Mr. Candler.

Q. Do you know his given name?

A. I think it is Howard.

Q. Mr. Howard Candler?

A. Yes, sir.

Q. State what official connection, if any, he held with the Coca-Cola Company?

A. I understood he was the Superintendent or Manager.

Mr. Sizer: We object to what he understood, may it please the Court.

The Court: Yes, I sustain the objection.

BY MR. MILLER.

Q. Well, state what he did and what duties he performed or what office he performed, and what duties he exercised in respect to that factory?

A. He seemed—well, he had more authority—managed the factory.

Q. Acted as manager of the factory?

A. Yes, sir.

Q. Now while there, did you go through the factory with Mr. Candler?

A. I did.

Q. Did you or not tell him what you were there for, that is, to learn how Coca-Cola was made?

A. I did.

Q. State if, in showing you through the factory, Mr. Howard Candler showed you the arrangements for mak-

ing this Coca-Cola syrup and how it was made?

A. He did.

Q. State if you disclosed to Mr. Candler what your official connection was with the Government?

A. I did.

Q. Now, where did you commence to make your inspection? or tour of inspection when you went through that factory, that is on what floor?

A. Upon the first floor.

Q. Does that mean the first floor above the basement, or does that mean the basement?

A. It means above the basement, the first floor from the street.

Q. How high is that floor above the street?

A. It is higher than the street. A few steps go up to it, I don't know just how many.

Q. Well, probably how many?

A. A half a dozen.

Q. And those steps that go up are many inches high, four to six?

A. I could not say on that, but ordinary height stone steps.

Q. Would you say about four to six inches in thickness?

A. About six inches, I would say.

Q. Now what is done on the first floor of this building, where you started, as respects the mixing and compounding of the Coca-Cola syrup?

A. The syrup is made on that floor.

Q. How is the syrup made?

A. It is made in a copper kettle, a large metal kettle, which stands almost in front as you enter from the street.

Q. It stands where?

A. Almost in front of you as you enter from the street.

Q. And in what portion of the building is it?

A. Well, I didn't get your meaning.

Q. I say, in what portion of the building is it, in the center or the corner?

A. No, it is in the corner, away from the door. There is an entrance on Coca-Cola Place also.

Q. Yes?

A. It is near to the entrance on Coca-Cola Place, the elevator entrance there.

Q. What is Coca-Cola Place, state whether or not that is an open street or court, or commons there on Coca-Cola Place?

A. It is a city street.

Q. And the syrup made in that kettle, what are the ingredients that go into it?

A. Sugar, coloring, and water.

Q. And how are they put in there?

A. The water comes in pipes from the city supply.

Q. How are these pipes connected with the kettle?

A. Imbedded down into it.

Q. They are overhead pipes?

A. Yes, sir.

Q. How are the other ingredients that go to make up the simple syrup placed in the kettle?

A. Flush with this kettle or nearly flush with the kettle is a wooden platform, and sugar, several barrels of sugar are stored on that platform. There was a colored man or cook making the syrup. The sugar is put in it by knocking the head out of the barrel and dumping over this platform.

Q. Did you mean into the kettle?

A. Yes, sir, and the caramel coloring, or sugar coloring, was kept in the barrel sitting by the side of the kettle, and that is put into the syrup by pouring into a metal measure and dumped into the kettle.

Q. Now, this colored man that was doing that dumping of the sugar and caramel coloring, you call a "Cook." Why do you call him a cook?

A. That is the term that Mr. Candler applied to him.

Q. Was there a cooking process that was going on there in connection with the manufacture of the Coca-Cola?

A. Yes, sir, they cook that syrup.

Q. Well, how do they do that, what was the arrangement?

A. By steam.

Q. How was the steam concentrated at the kettle?

A. I think it is a steam jacket arrangement, an inner kettle arrangement.

Q. An inner kettle arrangement?

A. Yes, sir.

Q. That is a jacket that comes on the outside of the kettle?

Mr. Sizer: I object to that, he is leading the witness, let the witness explain, Mr. Miller. Don't lead the witness.

A. The Court: Yes.

Mr. Miller: I beg your pardon.

BY MR. MILLER.

Q. Just explain how the steam was applied to the sur-

face of the kettle or concentrated or brought in concentration against it?

A. By means of a steam jacket, a steam jacket kettle.

Gen. Cox: Will you talk out a little louder.

The Witness: Yes, a steam jacket I said.

BY MR. MILLER.

Q. This negro cook that was on the platform and dumping the ingredients into the kettle, could you state how he was dressed?

A. Well, very scantly, a dirty undershirt, his shoes were badly broken, the bare feet were sticking out through them in parts, and he had on an old, dirty pair of trousers.

Q. State whether or not he was perspiring?

A. Yes, freely.

Q. Could you state whether or not he was chewing tobacco?

A. Yes, sir.

Q. Did he expectorate from time to time, and if so, where?

A. Whenever he happens to want to, just wherever it fell, on the platform and on the floor.

Q. Was that the same platform that he was dumping these barrels from over into the kettle?

A. Yes, sir.

Q. Now, in dumping the barrels, or contents of the barrels, into the kettle, state whether or not a portion of the contents were left on the platform?

A. Yes, sir, a considerable amount of the sugar fell on the platform.

Q. And how would the cook get that sugar on the platform, the sugar that fell on the platform? How would he get it into the kettle?

A. Shove some of it with his feet and also part of it in with a board.

Q. With his feet?

A. Yes, sir.

Q. Now, state whether this caramel matter that was in the barrel nearby was also dumped into the kettle from the original container by this same cook, and if so, how?

A. He poured it out through the bung hole of the barrel into a measure, and then from the measure into the kettle.

Q. Well, did any of it spill from time to time as he would pour it out?

A. Yes, sir, it would run down the side of the barrel and alongside the measure.

Q. Did it or not run out on this platform?

A. No.

Q. Then it was not on the platform?

A. No.

Q. Well, now, state as to whether you observed or not there had been a washday at the Coca-Cola Company's factory, or whether or not this platform had been washed or mopped up at any time, from time to time, as a result of your observations in that respect?

A. It looked to me like it had never been washed—the sugar had been ground in there by walking on it.

Q. Well, how about the mixing after these ingredients were poured into the kettle, was there or not any instrumentality used to mix them such as a spade or a shovel or a ladle or what?

A. I can't recall the mixing in that kettle. As I remember, it was done by a long, wooden spade.

Q. And how about the surface of the kettle and this spade, this instrument for mixing, state whether or not they appeared to have been washed at any time lately?

A. I would not describe the spade.

Q. Well, how about the surface of the kettle from the top down?

A. The kettle appeared as though it had never been thoroughly washed or scraped for some time. There was crystallized sug.. or syrup crystallized all over the edges of it, and in the joinings, the outlet, and along the different pipes that was about it.

Q. Were there any water closets, that is toilets or the use of the white and colored employes, and if so, whether or not they had any on that floor?

A. Yes, one on that floor.

Q. How was it disconnected with it, with the place where this syrup was made up?

A. The syrup is—I mean the closet is over against the wall, it is the flush bowl type, the ordinary type, and the door is left open.

Q. The door was left open?

A. Yes, sir.

Q. State whether or not that toilet opened into the factory building?

A. I could not say which way the door swung, Mr. Miller.

Q. Did it swing to the outside of the building on the street.

A. No, sir, it swung into this factory room, it opened into this factory room an dventilated into the factory room.

Q. Ventilated into the factory room?

A. Yes, sir.

Q. Was there any other method of ventilation except into the factory room?

A. No, sir.

Q. Now, what was the condition on the basement floor of the building and what processes are there to make up the Coca-Cola syrup?

A. The cooling tanks are down there, and the syrup is filled there, is put in the containers. The cooperage room is in the basement also.

Q. How was this syrup conveyed from the kettle, as you have described in the corner of the building on the first floor, down into the basement where the Coca-Cola syrup is made up?

A. By means of pipes.

Q. Now, when you got down into the basement, just explain that?

A. Now, when you got down into the basement, these pipes extended from the mixing kettle above to the vats or receptacles below where the syrup is made up.

Q. State how those pipes are connected in the basement with this vat or receptacle in which the Coca-Cola syrup proper is made?

A. The syrup runs from the kettle on the first floor through pipes into these tanks, these cooling tanks in the basement.

Q. And how many cooling tanks did they have.

A. Ten.

Q. How were these cooling tanks situated with respect to the outside of the building?

A. They are suspended from—they are all suspended from the ceiling of the basement which has stringers under the floor above. They are located to be near—some of them are—to be near the windows that open into this basement along the Edgewood Avenue and on Coca-Cola Place.

Q. Well, state then whether or not these windows are kept open or closed during the mixing process?

A. These windows were, at the cooling process, they were opened.

Q. How did they open, to the ouside or inside?

A. They opened in.

Q. How did they open, did they open backward or forward like a transom or slip up and down?

A. They opened down like a transom.

Q. How close were the tops of these cooling tanks to the first floor of the building, that is, would you say when you went in and when you went up these steps and went in from the street, about how close were they?

81

A. About six inches below these stringers or ceiling.

Q. What formed the ceiling of that basement or the overhead of it?

A. The stringers and the floor. The bottom of the first floor forms the ceiling.

Q. Then, it is just as if you had stringers put across and the floor above is nailed onto them?

A. Yes, sir.

Q. There is no ceiling or plastering down below at all?

A. No, sir.

Q. What was there, if anything, to prevent particles of dust or dirt that would drop from your feet in walking over the first floor when you went in, to seep through and fall into these vats or cooling tank, six inches below?

A. Nothing, absolutely nothing.

Q. State whether or not there were any cobwebs or spider webs suspended round from these cooling tanks in that basement room and in the vicinity of it?

A. Very general all through it.

Q. Now, what ingredients were placed in the mixing or cooling tank making up the Coca-Cola mixture proper in connection with the simple syrup that had been manufactured up on the first floor.

A. In the mixing tank?

Q. Well, now, the mixing tank, or in other words, that went to make up the Coca-Cola mixture, tell us as to how that is made up after it leaves the kettle that you describe on the first floor?

A. I have to depend of course, on Mr. Candler had said for this information, he gave it to me very freely.

Q. What did Mr. Candler tell you and what did you observe?

Mr. Sizer: I object to what Mr. Candler told him.

Mr. Miller: I submit it is competent for two reasons: first, competent because he was generally in charge of the business of the claimant, and second, I think it is competent under the provisions of this act, Section 12 of the act, which says:

> "When construing and enforcing the provisions of this act, the acts, omission or failure of any officer or agent of other person acting for, or employed by any corporation, company, society or association, within the scope of his employment or office, shall in every case be also deemed to be the act, omission, failure of such corporation, company, society or association, as well as that of the person."

Mr. Sizer: (Interrupting.) What section is that?

Mr. Miller: Section 12 of this Act. I say that in this case Mr. Candler was acting within the apparent scope of his authority, and he has been described here as the General Manager of this corporation; when he goes to tell about existing processes, and then this witness tells him his business there, and he goes on and tells him how it is made, this act would be binding on the corporation. And certainly, that is, to my mind, is fair, the fair and natural interpretation of this language. It is very true that is not broad enough to include a statement, that is to say, it does not use the word "Statement," but any acts or omission.

The Court: I don't think that was intended to refer to any question of negligence—I think the statement made by an agent of a company or of a narrative character as to a historical statement of facts, is competent.

Mr. Miller: We note an exception.

BY MR. MILLER.

Q. I understood you to say, Mr. Lynch, that Mr. Candler told you what his connection with the Company was?

A. He did — yes, sir.

Q. And that was what?

A. Manager.

Mr. Sizer: We object to that.

Mr. Miller: We have shown now, we submit, that this is not only a statement of the Manager, but certainly it shows a course of conduct which could not be reconciled with any other position except that of General Manager.

The Court: Even in the light of a General Manager's statement — I would not consider it competent — if you have any authority to present showing it is competent, you might furnish me the authority and I will consider it.

Mr. Miller: All right.

BY MR. MILLER.

Q. State whether you observed that there other ingredients conveyed into this mixture aside from the simple syrup that was made up on the first floor before it was turned out as Coca-Cola syrup.

A. Yes, sir.

Q. Now, how were these other ingredients conveyed into this mixture, or the place where they were mixed up, to form Coca-Cola syrup, give us a little detailed statement about that?

A. On the first floor, the opposite corner from the kettle, is a sort of a laboratory. In the corner of this laboratory is built a brick vault, and in this vault is stored the different essential oils. In each corner of this room there

on the first floor, there is a funnel arrangement — a funnel shaped arrangement leading down into the mixing tank into the basement, for the different essential oils, known as Merchandise No. 5 and phosphoric acid, lime juice, etc., is conveyed into this mixing tank through these funnels. The caffeine was separated in two different cans or containers, one large tin can, I should say, holding about fifty pounds. There was a patent metal drum arrangement with a lock top — I never saw it anywhere but in this place. The caffeine was measured into the box, which was an ordinary grocery box and then weighed on the platform scales, that stand in this laboratory, and is put into the syrup after being mixed with water or dissolved in solution of water. There is also commercial alcohol which is put with these different oils or flavors, enough to cut the different oils. That goes through the funnels into this mixing tank.

Q. State whether or not the packages of caffeine that you have described were marked "Caffeine"?

A. The cans were labeled "Caffeine". The drum was labeled Mer. No. 3.

Q. What is the color, or what was the color of the caffeine that was used there?

A. It is a white, crystallized looking powder.

Q. How much of that caffeine was used in making up a particular quantity of the mixture known as Coca-Cola syrup?

A. These scales were set — I will have to refer to my notes, Mr. Miller.

The Court: While the witness looks at his notes, I think I will call your attention to the case in 20th Wallace, 558, and cases cited 16th Cyt., 1008, and other cases.

Mr. Miller: We have some authorities which I will be pleased to submit a list of to adversary counsel and Your Honor after adjournment.

The Court: All right.

BY MR. MILLER.

Q. Have you found your notes, Mr. Lynch, from which you could refresh yourself?

A. Yes, sir.

Q. Then tell us the ingredients, I mean the quantity of caffeine that was used in making a particular quantity of the mixture which is popularly known and sold as Coca-Cola syrup, and which went out of that factory branded and labeled as such.

A. These scales were a sort of a two beam type, the P on the lower beam set at thirty and a half pounds, and the P on the upper beam at three-quarters of a pound. While

going through the factory, the nigger weighed this out. And the P's were shifted over very quickly as I started to come around.

Q. Who shifted them over?

A. Mr. Candler.

Q. Mr. Candler who was with you, was that Mr. Howard Candler?

A. Yes, sir.

Q. Is that the same Mr. Candler who said he was the General Manager?

A. Yes, sir, the box would tare at five pounds.

Q. That is the box alone?

A. Yes, sir.

Q. You mean would weigh that?

A. Yes, sir, and the caffeine would be twenty-five pounds to twelve hundred gallons of the syrup.

Q. Now, how was that caffeine measured; you say it was poured into this box, did I understand you?

A. Yes, sir, taken out of the retainer.

Q. And put in the box?

A. Yes, sir.

Q. And where was the box then placed?

A. On the scales.

Q. And the scales were set to weigh what?

A. Thirty and a half on the lower beam and three-quarters of a pound on the top.

Q. To what extent had this grocery box in which the caffeine was measured; to what extent had it been filled when Mr. Candler shifted over the P's on the beam?

A. Oh, it had already been weighed.

Q. Do you know what was done with that caffeine, now, after it was weighed out?

A. No, sir, I didn't see it, the nigger took it out in this room.

Q. Took it out of the room?

A. Yes, sir, took it out of the laboratory.

Q. Was that nigger down in the basement or up on the first floor.

A. Yes, sir, on the first floor.

Q. What nigger was that, the cook?

A. Yes, sir, the cook.

Q. That was the man that was working at the kettle?

A. Yes, sir.

Q. What did you say?

A. I said yes, sir.

Q. Did Mr. Candler say to you whether or not that receptacle filled with caffeine as you saw it, was used in making some twelve hundred gallons of Coca-Cola syrup.

Mr. Sizer: I object to that.

The Witness: Yes, sir.

Mr. Miller: Wait a minute, Mr. Lynch. I understood Your Honor to hold that was competent.

Mr. Sizer: We object to it for two reasons.

The Court: If that statement was made with reference to the transaction going on at that particular moment, as to what was being used at that time, the manufacturing then being carried on, but merely made as a general statement, a general narrative as to the method carried on, as to the general conduct of the business, I hold it is incompetent.

Mr. Miller: Your Honor has heard the witness say that the cook came there and got it.

Mr. Sizer (interrupting): Mr. Miller, the question is very leading. Mr. Miller should ask the witness as to what was said in that connection.

The Court: Well, if you want that ——

Mr. Sizer (interrupting): We are contending that anything Mr. Candler said as to the customary way of making Coca-Cola would be immaterial and irrelevant.

The Court: I so rule, and I also rule if he made any statement about any particular thing being done at that time, it is competent.

Mr. Sizer: We submit that is incompetent because it has not been shown that particular Coca-Cola being made at that time was the Coca-Cola attached in this case, so it would be immaterial how they were making that particular Coca-Cola at that time.

The Court: I think that would be a circumstance. You may answer the question provided Mr. Candler's statement was made to you with reference to the particular transaction then going on, as to what that particular caffeine you saw was being used for them. If he merely made a general statement as to what they did with caffeine, you will not answer, you may so state and need not give any particulars.

The Witness: He was not referring to that particular lot of caffeine.

The Court: Then I hold it incompetent.

BY MR. MILLER.

Q. Did you have any conversation about this particular batch when he shoved the P's, when you verified the weight of it, as to what was to be done with it?

A. Yes, I asked him what was that, and he said caffeine that was going into the Coca-Cola.

Q. Was that the particular batch that they were making at that time?

A. I could not say.

Mr. Sizer: Then I object to his answer.

The Court: I think that the statement that particular caffeine was to go into Coca-Cola, is not very material, as it is agreed that caffeine is in there.

Mr. Sizer: Yes.

BY MR. MILLER.

Q. State what became of this caffeine that had been measured out of this box, that is, what was done with it, where did this negro take it to?

A. Into the factory room.

Q. And in the direction of this syrup tank?

A. Yes, sir.

Q. State whether or not the box was full or to what extent it was filled?

A. Why, I could not say, it was pretty near full.

Q. State whether or not you had occasion to observe whether the quantity of caffeine put in was accurately weighed; say whether you did or didn't, and tell why and how?

A. I did not on this occasion.

Q. Well, did you on other occasions between that and time of this particular seizure, between that time and the time this particular seizure was made?

A. Yes, sir.

Q. What were the circumstances of your observations thus made.

A. I was later on in the factory, between this visit and the time of the seizure, but I did not go up into the office at that time; I went down stairs. I was talking to the fellow that measures it, and I saw that negro come along and take out that caffeine and put it on the scales.

Q. And was this the same negro cook?

A. Yes, sir.

Q. It was the negro cook?

A. Yes, sir. I called him back and I saw that, and there was a difference of a pound and a half, that was as near as he got it.

Q. A difference of a pound and a half, what do you mean by that?

A. In the scales where he carried the caffeine, he took the weight, twenty-six and a half pounds, whereas it should have weighed twenty-five.

Mr. Sizer: I object to that.

The Court: Yes, the objection is sustained.

BY MR. MILLER.

Q. State how that was?

A. The box tared at five pounds, the scale stood at thirty and a half pounds — the box, the gross weight was actually thirty-two pounds, that the box tared at five and a half pounds, making a caffeine net at twenty-six and a half pounds.

Q. Now state if there were any toilets for the help on that basement floor, and if so, how they were arranged there?

A. Yes, there was one toilet in the basement of the same type as the one above, and it opened into the basement ventilated into the basement rather, and the floor was very dirty and littered up and evidently had never been scrubbed.

Q. What was the floor made of in the basement?

A. The floor was made of concrete.

Q. Was it smooth and level, or otherwise, describe it?

A. No, sir, it was badly worn, with holes in it, drain or cess pool in it, and on account of these holes, had large cess pool practically, so that the water would remain in these pools and not drain off.

Q. State whether or not that water appeared to be stagnant?

A. I could not say; I could not judge that on account of the other odor, the odors of the paint, the turpentine and different oils used; you could not get any foul odor.

A. You say there was a cess pool in the center; what did that connect with?

A. The city sewer.

Q. Was there anything to prevent the sewer gas from the city coming up into the basement of the factory?

Mr. Sizer: I object to that question.

The Court: On what ground:

Mr. Sizer: There is no proof that any sewer gas ever came up. He has asked him if there was anything to prevent the sewer gas from coming up.

The Witness: Well ——

The Court: I do not see how this witness would know that.

Mr. Miller: I am asking if there was any gaseous substances in the sewer, if there was anything to prevent it by reason of the connection, to keep it from coming right into the factory.

The Court: Well, I do not see how he could tell as to what traps there were under the floor, and I sustain the objection.

Mr. Miller: We desire to note an exception to the ruling of the Court:

BY MR. MILLER.

Q. What was the arrangement?

The Court: The mere fact that he saw nothing on the surface would not indicate anything.

BY MR. MILLER.

Q. What was the arrangement by which the water that did drain from this basement went from the basement into the sewer?

A. The sewer had a perforated plate.

Q. Around what?

A. Round the plate or cap.

Q. How large were the apertures in there?

A. Just about the size of the top of a man's finger, the ordinary cess pool cover, that is used for a covering.

Q. What did the help in this factory consist of, how many employes?

A. Well, I will have to look that up.

The Court: We will take a ten minute recess.

(Thereupon the Court took a recess for ten minutes).

AFTER RECESS.

Q. Are you ready to answer the question, Mr. Lynch?

A. Have the question repeated, please.

(The question was then stated to the witness as follows: "Q. What did the help in this factory consist of, how many employes"?)

A. Three whites and eight negroes.

Q. Three whites and eight what?

A. Three whites and eight negroes.

Q. How were the negroes dressed?

A. There was no attempt made to furnish the help with any clean clothing or uniform clothing; they were dressed as such ordinary negro laborers dress.

Q. State whether or not they were using tobacco?

A. The most of them were.

Q. Where did they expectorate generally; were any cuspidors or spittoons provided for them?

A. No, sir, they just let it, spit all over the floor wherever it happened to fall.

Q. Were these darkies clean or otherwise?

A. They were anything but clean; it was a hot day and they were perspiring, and their shirts, all had on undershirts, some with the sleeves cut out, and just a paid of trousers and an undershirt was about all they had on.

Q. Now, these windows that were adjusted so as to open back near the cooling tank; I will ask you whether or not there was any protection to avoid material, such as dirt, dust, or anything else that was on the outside from coming in these windows and settling in the cooling tank?

Mr. Sizer: I object to that question. He might ask him whether there were any screens on the windows, but I object to the balance of the question, because it is not competent, there is no evidence there was any dirt or anything flying around there.

Mr. Miller: Well, I will just prove that, if you require it.

The Court: The question is hypothetical, and I will overrule the exception.

Mr. Hirsch: We take an exception.

BY MR. MILLER.

Q. Was there any protection against that, Mr. Lynch?

A. No, sir, the tanks were uncovered and the windows were not screened, just iron bars across them.

Q. What were the conditions with respect to dust and dirt and droppings from animals that passed by, if any?

A. Coca-Cola Place is an unpaved street; it is macadamized, I think, dust and dirt on it, while Edgewood avenue is paved. It is a peculiarly windy corner on windy days on account of that triangular shape, the odd location of the building, and on windy days — it depends on the wind, the sweepings and everything go right in through the cellar window in on the syrup that is cooling.

Q. How about the stairs that lead down from the first floor, or story, into the basement; how were they kept; in what condition were they?

A. They were covered with several inches of accumulation of dirt so that I had considerable difficulty in getting down there. I was afraid of slipping down, and had never been washed, cleaned, or scrubbed.

Q. Now, after this mixture is put into the cooling tanks and cooled off, then what is done with it?

A. It is drawn into a mixing tank.

Q. And what is the mixing process?

A. A large tank fitted with a stirrer to stir up the ingredients put into the syrup after it has cooled.

Q. I will ask you whether or not you took any photographs, or had your camera and took some snap-shots of this building, showing its location with respect to the street, its height, and so forth?

A. I did.

Q. Well, probably I can do it better than the Marshal;

I will pass first to you the first photograph of the building, and will ask you if that is a photograph of the building as you took it, and if it represents in outline the building from the outside?

A. It does.

Mr. Sizer: I do not like always to be objecting to the form of the questions, but I suggest a proper form, and the proper question would be to ask him what it does represent, not what he thinks it represents. It is not for Mr. Miller to state to the witness what he thinks it represents.

The Court: Yes, that is a better form.

Mr. Miller: Yes, I am pleased to do it.

The Court: Just offer them to him in a bunch and ask him about them.

BY MR. MILLER.

Q. If you can identify these four photographs, mark them Exhibits one, two, three and four, and tell what they represent?

A. I can identify them. This one, marked Exhibit one, is a picture of the building, as much of it as I could get in my camera, showing the location of the building, the line of the building on Edgewood avenue, and on Coca-Cola Place, and also showing the five windows which are marked one, two, three, four and five by the side of which these cooling tanks; just inside of which these cooling tanks are located almost near enough that I could reach in and touch the syrup in these cooling tanks.

Q. You mean from the outside?

A. Yes, sir, and also shows on Coca-Cola Place dimly these windows.

Q. Let us have them. Maybe these gentlemen would like to inspect them before the jury sees them.

Mr. Hirsch: It does not make any difference.

Mr. Miller: I will pass it to the jury and then you can inspect it later.

The Witness: Ex. No. 2 is just a portion of the side of the building on Coca-Cola Place, showing one of the windows and bars in it, and the window can be seen or the glass can be seen let down, and the tank or tanks are right by the side there. It shows the windows.

Q. It shows this contiguity of the window and the tank?

A. Yes, sir. This is No. 3, and is another view of the same thing taken of a portion of the building on Coca-Cola Place, and shows more clearly that same window. No. 4 shows the entrance to the building and shows the length of the building on Coca-Cola Place, and shows two windows

and also shows the entrance on Coca-Cola Place near which is located the platform and the syrup kettle.

Q. That is the platform on which the cook stood?

A. Yes, sir, that shows the entrance there.

Mr. Miller: When you gentlemen finish with them, (referring to the jury) get them together and we will hand them over to the gentlemen on the other side.

BY MR. MILLER.

Q. Now, as to this inspection of yours of July, 1909, I will get you to state if you went to that factory with Dr. L. F. Kebler, between that date and the time that this seizure was made?

A. Yes, sir.

Q. Can you tell us about when that was?

A. Yes, I can give you the exact date. (Examining memorandum.) That was October the twentieth, 1909.

Q. What position did Dr. Kebler hold ——

Mr. Sizer: (Interrupting.) That is subsequent to the date of the shipment.

The Witness: October 20th, 1909.

The Court: What was the date of the seizure?

Mr. Sizer: The averment states the seizure was made on the 21st — the shipment was made on the 18th.

Mr. Miller: I don't think it was made on the 18th.

The Witness: The shipment was made on the 19th.

Mr. Sizer: And was received in Chattanooga the 20th day of October, 1909. I believe it was on the very day the information was filed, the 21st. They were there on the day this shipment was received in Chattanooga.

BY MR. MILLER.

Q. Well, I will ask you whether or not in connection with Dr. F. L. Kebler, you went to this factory after your inspection of July, 1909, about which you have already testified, and before the shipment was made that was seized in this case?

A. And before the shipment was made?

Q. Yes, before the shipment but after your inspection of July, 1909, if you went in there with Dr. Kebler?

A. The shipment was made on the 19th and I was in there on the 20th of October; the car was loaded on the 19th.

Q. How was that?

A. The car was loaded on the 19th.

Q. Yes?

A. And I went in there on the 20th with Dr. Kebler.

Q. On the 20th with Dr. Kebler?

A. Yes, sir.

Q. That was the date of your and Dr. Kebler's visit?

A. Yes, sir.

Q. Now, what were the circumstances of that seizure — did you see the car being loaded with this Coca-Cola syrup which was manufactured in the basement of this building?

A. I saw a car being loaded, yes, sir.

Q. What was that?

A. Wabash 64784.

Q. To whom was that car consigned, Mr. Lynch?

A. The Coca-Cola Bottling Works at Chattanooga, Tennessee.

Q. Now, after you saw that car being loaded, what did you do?

A. I wired the facts of the loading and shipment into the Bureau at Washington.

Q. Were these packages that you saw being put into that car, original packages and barrels and kegs of Coca-Cola, or not?

A. Yes, sir, they were.

Q. Of Coca-Cola syrup?

A. Yes, sir, they were so marked.

Q. And after you wired the department at Washington, what did you next do?

The Court: I don't see that it is material what he did.

Mr. Miller: I mean with reference to this particular shipment. we are only trying to identify the shipment.

The Court: If there is any particular thing you want to ask him, just ask him.

BY MR. MILLER.

Q. What did you next do; do not state the instructions you got, but what did you next do with respect to this shipment?

A. I went to Knoxville and conferred with J. R. Penland.

Q. Who was then United States District Attorney for Eastern Tennessee?

A. Yes, sir.

Q. Then where did you come to?

A. He and I came here to Chattanooga.

Q. And after you came to Chattanooga you found the same car that was being loaded at Atlanta with these original packages?

A. Yes, sir.

Q. And what was being done with that car?

A. It was being drawn away by a shifting engine away

from the track of the Coca-Cola Bottling Works.

Q. Now, if you at that time made any investigation as to the contents of this car and took any samples from the contents of the car, just tell us what you did respecting the contents, how you identified it, and what you did with them?

A. There was nothing in the car, the car was empty. I went to the Coca-Cola Bottling Works, and met Mr. Johnson and attached twenty barrels in their possession, and from there we went to Trigg, Dobbs, and from there — I said twenty barrels, nineteen barrels only; they used one. Nineteen came to the Coca-Cola Bottling Works; and from there went to Trigg, Dobbs, and attached eighteen barrels and twenty kegs and drew samples from the lot in the possession of the Coca-Cola Bottling Works, and sealed them in the presence of Mr. Johnson, and went from there to Triggs, Dobbs & Company and drew two samples, one from a barrel and one from a keg, and I sealed those in the presence of Mr. Dobbs and his warehouse receiving clerk.

Q. Was that Mr. W. J. Dobbs that was examined here this morning?

A. Yes, sir.

Q. Now do I understand you correctly, that you took a gallon from a barrel and a gallon from a keg of that shipment that was poured out by Mr. Dobbs?

A. Yes, sir, I did.

Q. How did you arrange to prevent any bacteria or anything of that sort being in those jugs, which you shipped into Washington, and if you made any efforts in that direction, tell what they were?

A. I purchased these three jugs from a wholesale whisky house in town; they were new jugs, and I sterilized them in the Coca-Cola Bottling Company's plant with steam, used their steam jet and allowed to boil in water for several minutes. I steamed my cork that I stopped the bottle with. They had an arrangement of drawing the syrup through a faucet attachment which you could put in the barrel, and I sterilized that in taking the samples. I also took that with me and used that down there at Trigg, Dobbs & Company and sterilized it again, stuffed both ends of it, the faucet end and the other end, with sterilized cotton, so as to prevent any contamination in carrying it, and I used that to draw the syrup at Triggs, Dobbs Company.

Q. And you took how many samples at Trigg, Dobbs?

A. Two.

Q. And one from a keg?

A. Yes, sir.

Q. And one from a barrel?
A. Yes, sir.
Q. What size were those samples, what quantity?
A. A gallon.
Q. Did you take a gallon from the keg and the barrel?
A. Yes, sir.
Q. And now then, what is the method adopted and what did you adopt as your method to transmit these samples to the Bureau of Chemistry at Washington?
A. My seal was a regulation Department seal, what is known as the Inspector's Interstate Sample Number shipment; put that on them, and shipped them by express to the Drug Division, Bureau of Chemistry.
Q. To what carrier did you deliver those samples?
A. The Southern Express Company.
Q. Was that here in Chattanooga?
A. Yes, sir.
Q. Now, have you a sample of the seals that you used in that transmission?
A. Yes, sir.
Q. Now, just explain to the jury how it is that when a sample is sent in that you are able to identify it afterward when it came back from the Bureau of Chemistry, as being the identical package that you sent in.
A. We have this book furnished us by the Department which contains seals, each numbered serially, and we write it in there, use a transfer sheet, and keep it as duplicate in the stubs of this, and the number of this sheet three and we paste that on the containers of the sample, and we put that same number on our seal, and give the date, and give our signature, then paste this seal over the mouth of the vessel so it can't be opened without breaking that seal; that number is on the seal and that number as there duplicated. This is retained in my possession. That number identifies it all the way through. It identifies that sample, no other inspector has that number or that seal.
Q. What were the I. S. or interstate sample or inspector's seal, as you seem to use the two, that you put on the keg and the one that you put on at the business place of Trigg, Dobbs & Company at Chattanooga?
A. 3967-B was the keg and 3968-B was the sample taken from the barrel.
Q. What was the number of the samples that you drew from the place of the Chattanooga Bottling Works where Mr. Johnson pointed out to you the shipment?
A. 3966-B.
Q. Now, when you drew these samples, if I understood

you correctly, you put your own seal and signature across the cork?

A. Yes, sir.

Q. And the mouth of the vessel in which these samples were contained.

A. Yes, sir.

Q. Will you be able to identify your signature, your seal, now if you were to see it?

A. Yes, sir.

Mr. Miller: I will turn the witness over for cross examination with the reservation that we will send for the jug in which it was shipped and ask about them before the close of the examination in chief.

Mr. Sizer: What is that?

Mr. Miller: With the right when he presents the jugs in court, we have sent for them at the hotel, and when he identifies those — wait a minute, though.

BY MR. MILLER.

Q. Oh, yes, there is one more point. After these samples were taken out, I will get you to state whether or not a keg of this mixture was released and if you shipped that to any point, and if so, where?

A. I got an order from the Court allowing me to take a keg from Trigg, Dobbs and from this lot on November 29, 1909.

Q. And what did you do with that?

A. I sealed that keg in the same manner, I. S. 3980-B, and sent it in to the Drug Division by the Southern Express Company.

Q. To Washington?

A. Yes, sir.

Q. And you would be able to identify that also?

A. Yes, sir, I will.

Q. Did you make any change in the contents of these packages after you drew them off?

A. Absolutely none.

Q. State whether or not these packages from which they were drawn appeared to be in perfect condition, that is whether they appeared to have been opened after shipment by the Coca-Cola Company.

A. No appearance of them being opened.

Mr. Miller: Well, that is all, with that reservation.

CROSS EXAMINATION.

BY MR. SIZER.

Q. What did you say was the date of your first visit to this factory?

A. Let me see (examining memorandum); I see I first inspected it on July 19, 1909.

Q. How did you happen to go there on that date?

A. I received instructions to make a sanitary inspection of that plant.

Q. Did you go and acquaint the representatives of that Company with your purpose?

A. I certainly did, yes.

Q. And Mr. Howard Candler went through the factory with you?

A. Mr. Candler went through the factory with me.

Q. He did?

A. Yes, sir.

Q. Mr. Howard Candler, was it?

A. Yes, sir, Mr. Howard Candler.

Q. He went through the factory with you?

A. Yes, sir.

Q. And how long did you take in making that examination?

A. Oh, I was there the greater part of the day, the greater part of the forenoon.

Q. You say the greater part of the day, you mean the greater part of the forenoon?

A. I was there the whole forenoon.

Q. The whole forenoon?

A. Yes, sir.

Q. Now, about how many hours — when did you get there and how long did it take you to get through?

A. I can't say that.

Q. You went there about nine or ten o'clock in the morning?

A. I guess nearer nine o'clock than ten.

Q. And got through about noon?

A. (Looking at the paper.) Pardon me just a moment.

Q. Well, if you don't remember, it is not of sufficient importance to justify you in hunting your memorandum. I understood you a while ago that it took you the greater part of the forenoon or perhaps all the forenoon to inspect it from the time you got there.

A. I could not say whether the forenoon or not.

Q. You could not?

A. No, sir.

Q. You could not say whether it was in the forenoon or in the afternoon?

A. No, sir, all I have is on my official diary, and that is all I did on that day, inspect the Coca-Cola Company, and that would indicate I was there pretty nearly all day.

Q. You simply have no other memorandum on that

diary and that is the only thing you can base the statement on that you were there pretty nearly all day?

A. I remember the length of time it took me to go through there; I went through there very thoroughly from top to bottom.

Q. Now, do you say you saw a tank in which this sugar was melted for this compound?

A. Yes, sir.

Q. That is the plain, ordinary sugar that they dump in out of the barrel?

A. Yes, sir.

Q. That is into a big kettle surrounded by a platform?

A. No, sir, not surrounded.

Q. Not surrounded?

A. No, sir.

Q. How much of the compass of the platform surrounds it?

A. The kettle is circular and this platform is at the rear of the kettle.

Q. Back of the kettle?

A. Yes, sir.

Q. And that platform has a step or two leading to it, and they bring up the barreled sugar and knock the head out of it and dump it over in the kettle?

A. As I remember, there were several barrels on the platform.

Q. Several barrels on the platform there?

A. Yes, sir.

Q. Well, they dump the barrels in one at a time?

A. Yes, sir.

Q. And as the sugar would fall into the kettle, some of it would spread out on the platform?

A. Yes, sir.

Q. And gum up and crystallize on the platform?

A. I would not say it would crystallize on the platform.

Q. Well, it was dumped on the platform, at any rate, to some extent.

Q. You say they had a nigger man that did the cooking and in charge of the dumping operation?

A. Yes, sir.

Q. Well, they have a great many negro cooks in Atlanta, don't they?

Mr. Miller: I object to that.

The Court: That is immaterial.

BY MR. SIZER.

Q. Isn't it a fact, Mr. Lynch, that as a general rule in

Atlanta and throughout the South that the employes that are engaged in doing unskilled work are colored men?

Mr. Miller: I object.

Mr. Sizer: They seemed to dwell on the fact that we had a colored cook there. I want to show that we are not guilty of any undue negligence.

The Court: The exception is overruled.

The Witness: Some factories in Atlanta don't employ any negroes at all.

BY MR. SIZER.

Q. I didn't ask you that question — will you kindly answer the question as I put it to you, if it is not a fact that most employes engaged in unskilled labor throughout the South generally are colored men?

A. Why, yes.

Q. Now, you say the darky was sweating?

A. Why, yes.

Q. You were sweating, too, that day?

A. No, sir.

Q. You were not sweating?

A. No, I don't remember.

Q. You don't remember?

A. No, sir.

Q. It was a hot day in July, was it?

A. Yes, it was a hot day.

Q. That was a hot place, too, was it, right over that steaming kettle, was it not?

A. I don't know; I was not over the kettle; I could not see that it was any hotter there than anywhere else.

Q. You don't think it was any hotter over that steaming kettle or boiling sugar than anywhere else?

A. It was not boiling then.

Q. It was not hot then?

A. Not hot then.

Q. If I remember right you testified that they were getting ready to boil that sugar.

A. They were mixing the syrup.

Q. Didn't they turn on the steam and heat the kettle up before they mixed it?

A. I don't know.

Q. Don't you have to have it hot before the sugar is melted?

A. Yes, sir; certainly.

Q. And that sugar was melted, was it?

A. You say, it was melted, was it?

Q. Didn't you look at the sugar after it was dumped in there?

A. Yes, sir.
Q. Was it melted?
A. I could not say.
Q. Didn't you say a while ago it was melted?
A. I could not say.
Q. You don't know whether it was melted or not in the kettle?
A. The melting is done in the kettle.
I asked you whether the particular sugar that was in that kettle at that time you made this inspection was melted?
A. I could not say.
Q. You didn't examine it close enough to see whether the sugar was melted?
A. No, sir.
Q. Well, what was it you were there looking at that kettle for, to see how they put the sugar in it?
A. To make a sanitary inspection of the factory.
Q. You didn't have any interest particularly in the kettle?
A. Only as to its sanitary condition.
Q. Now, they had a jacket around that kettle by which they introduced the steam and that steam gave the heat that melted the sugar?
A. Yes, sir.
Q. That was the situation there?
A. Yes, sir.
Q. Was there any steam in the jacket at the time you were there?
A. I could not say.
Q. At any rate, the darky was perspiring very freely?
A. Yes, sir.
Q. You say he was chewing tobacco?
A. Yes, sir.
Q. How do you know he was?
A. Well, in making those inspections we paid particular attention to the expectoration and regulations of that kind, whether there is any rules posted up as to spitting, whethed the employes spit around; and that is a part of our business.
Q. Did you see him take any chew of tobacco while you were there?
A. I can't say that I did.
Q. Did you go and examine any of his expectoration or analyze it to see whether he was chewing tobacco or gum?
A. It was not necessary.
Q. Did you do it?
A. I saw him spitting around there.

Q. Do you know it by the color?
A. Yes, sir.
Q. Might it have been that he was chewing licorice?
A. I never knew a nigger to chew licorice.
Q. How could you tell whether he was chewing tobacco or licorice?
A. By the way it landed on the floor and the general appearance of it.
Q. How was it that it landed on the floor, and what was the general appearance of it?
The Court: I think that is sufficient.

BY MR. SIZER.

Q. You didn't analyze these expectorations to see whether he was chewing tobacco or not?
A. I am not an analyist.
Q. You say he was chewing something?
A. He was chewing tobacco.
Q. That is, you thought from the sound it made on the floor and the looks of it?
A. From the appearance of it.
Q. From the appearance of it?
A. Yes, sir.
Q. And you didn't see him take any chew of tobacco while you were in there?
A. No, sir.
Q. You didn't see him spit in the kettle?
A. No, sir, he didn't spit in the kettle.
Q. Now, in that first vat was sugar and into that they introduced some caramel?
A. Yes, sir.
Q. That caramel is just brown sugar, is it?
A. I don't know what it is.
Q. You don't know what caramel is?
A. I understand burnt sugar, caramel sugar.
Q. That is what they put into this caramel coloring?
A. Yes, sir.
Q. And caramel coloring is burnt sugar?
A. Not to my knowledge; I don't know.
The Court: That is supposed to be correct, is it?
Mr. Miller: I expect that is true.

BY MR. SIZER.

Q. And next they put in some caffeine?
A. I didn't see them put in the caffeine.
Mr. Miller: Well, we will agree they did.

BY MR. SIZER.

Q. Didn't you testify on your examination in chief that

they dumped a box of caffeine into it?

A. I don't remember testifying that I saw them dump it into it.

Q. Didn't you say they put it into it?

A. No, sir, I didn't make that statement.

Q. Then what you mean to say is you don't know whether they put caffeine in it or not, is that right?

A. I saw the nigger come in and get the caffeine.

Q. And take it out?

A. Yes, sir, I was in the laboratory at the time.

Q. What did you say now about the quantity of caffeine? I want to get an understanding of just what you did testify about the quantity of caffeine that was put in that kettle of syrup.

A. I didn't testify the caffeine was put into that kettle of syrup. I testified as to the P's on that scale.

Q. What has the P's on the scale got to do with it?

A. That is the balances.

Q. You don't know how much caffeine was in the box or how much was put in the mixture?

A. Not at that time. I know the lower P was 30½ pounds and the upper P three-quarters of a pound, and the nigger weighed it and let the P go up.

Q. You know what that weighed?

A. No, sir, I didn't know then; I didn't tare the box at that time. I should judge ——

Q. (Interrupting) I didn't ask you what you should judge, but do you know what that weight indicated?

A. That weight indicated the gross amount, indicated the weight of the caffeine in the box.

Q. How much was that, now?

A. Thirty and a half pounds on the lower P and three-quarters on the upper P.

Q. And that included the box and the caffeine?

A. Thirty-one and a quarter pounds.

Q. How much sugar was in the vat?

A. I can't tell.

And that caffeine was put in, was it, into the vat?

A. I am told into twelve hundred gallons.

Q. Do you know, or is that just simply your information.

A. That is my information.

(Thereupon the Court, at 12:30 o'clock P. M., took a recess until 1:30 o'clock P. M.)

AFTERNOON SESSION.

The Court, at 1:30 o'clock P. M., met pursuant to adjournment.

PLAINTIFF'S EVIDENCE CONTINUED.

L. Y. LYNCH resumed the stand for further cross-examination, testifying as follows:

CROSS-EXAMINATION — Continued.

BY MR. SIZER.

Q. Mr. Lynch, as I understood your testimony this morning, this sugar, syrup, caramel and the caffeine were all mixed together in this kettle on one floor, is that correct?

A. That is the way I understood it from Mr. Candler.

Q. At any rate, you saw the boxes of caffeine carried out to be dumped in there on the floor?

A. I saw the box of caffeine carried out, but I did not see where it was dumped.

Q. And from the fact that it was carried out of the laboratory in the direction of the kettle you inferred it was emptied into the kettle on that floor?

A. I asked Mr. Candler.

Q. But I didn't ask you that; you don't know personally where it went?

A. No, sir.

Q. Well, you did testify to the fact that certain of the ingredients were subsequently put in, didn't you?

A. Yes, sir.

Q. The fact is now that after the caffeine is put into the syrup the next ingredient put in is the coloring, is it?

A. I don't know about that; I didn't see that.

Q. Well, you won't say whether or not other ingredients were put into it or not?

A. Sir?

Q. Do you say that you do know what ingredients were put in it at all?

A. Only from what Mr. Candler told me.

Q. You have no personal knowledge of it, then?

A. No, sir, other than what I was told.

Q. Well, when you were testifying before noon that certain flavoring extracts and some phosphoric acid and things of that kind were put into the compound, you were simply stating what Mr. Candler, Mr. Howard Candler, told you?

A. Yes, sir.

Q. You don't know as a matter of fact what ingredients went into this compound?

A. No, sir.

Mr. Sizer: We move to exclude all that he has testified with reference to the ingredients that went into the compound.

The Witness: Except the sugar and the caramel coloring.

Mr. Sizer: I accept that—

The Court: This statement made to you, was it a statement as to what was being done with the ingredients there at the time in the actual process, or merely a general statement as to their process of manufacture, or did he tell you as to the use of any particular phosphoric acid or only make a general statement as to the method of manufacture?

The Witness: He pointed out the different containers and said they were using them in the manufacture of Coca-Cola.

The Court: Just made a general statement about it?

The Witness: Yes, sir.

The Court: Then I sustain the exceptions. As I understand it, the rule announced in 20th Wallace, 528 by the Supreme Court, and other authorities, is this, that as a general rule declarations of the agent made while acting within the scope of his authority and during the continuance of his agency may be given in the evidence in regard to transactions pending at the time as part of the res gestae, but other declarations that do not constitute a part of the res gestae but being mere narrative statements, are excluded as hearsay.

Mr. Miller: The statement here was made two days after the transaction occurred and was simply showing how it occurred two days previous and the point we have here is Mr. Lynch went to the factory and told the manager what his business was there, he was there to determine how this was made and that the manager in turn took him through and undertook to show him how it was, and that being a part of Mr. Lynch's official duty, occurring at the time, and the negro came in to get the caffeine at the time, that could not be likened to the Huff case where two days afterwards a man merely stated to a third party how a thing was, but this occurred at that time. I understand—

The Court: (Interrupting.) This witness only states what Mr. Candler told him, after the general method of doing business, and he did not make any statement as to what they were doing with any particular ingredients or articles at that particular time.

General Cox: That decision, your Honor refers to, was made on general principles and we have a statute passed here in 1906 that probably will aid your Honor, and the decision which your Honor refers to—because this Act says, when we construe it, the provisions of this Act—"The acts, omissions or failures of any officer, agent or

other person acting for or employed by any corporation, company, society or association within the scope of his employment or office shall in every case be also deemed to be the act, omission or failure of such corporation, company, society or association, as well as that of the person."

I say that probably your Honor's decision, the one to which you refer, was based upon the general law, but here is an act—

The Court: (Interrupting.) I don't think that provision of the Food and Drugs Act is intended to change the rule of evidence but merely affects the liability of a company for the act of an agent. You may proceed.

BY MR. SIZER.

Mr. Lynch, you say you found a cess pool, I believe you term it, in the floor or basement, it that correct?

The Court: I do not see that these matters are very material, because if there was caffeine there it is a subject of chemical analysis, and to prove what they were doing there does not seem to be so material, except as it may bear on the charge in reference to the coloring to conceal the impurities, but otherwise I do not see that it has much weight.

Mr. Miller: I just suggest this thought to your Honor —if it was being manufactured, twenty-four pounds to-day and twenty-eight pounds to-morrow, I mean, if that much caffeine was put in at different times, it would have quite a bit to do with this particular mixture when you come to try it on one phase of the defense, which is as I understand in the nature of a confession and avoidance. They claim they have had a formula and made it and sold it according to this formula for a number of years. And, when we show varying quantities and I believe I can show by this witness and others—

The Court: (Interrupting.) I have allowed you to prove that, I did not exclude that, as to what he saw weighed.

Gen. Cox: Your Honor only excludes what Mr. Candler said?

The Court: Yes, the general methods of operation that Mr. Candler told him about.

BY MR. SIZER.

Q. I asked you about that cess pool, what do you mean by that?

A. It was not a cess pool, but it was a drain.

Q. I thought you called it a cess pool—why did you call it a cess-pool?

A. I didn't intend to do that, it was not a cess pool.

Q. It was not a cess pool?
A. No, sir.
Q. Not in any sense?
A. No, sir, it was not a cess pool.
Q. It was simply a trap connected with the city sewer so they could wash the floor up and the water would run into the sewer?
A. I don't understand the word "trap." It was a hole, covered by an iron grate; it had holes in it and emptied into the sewer.
Q. And when you said it was a cess pool you didn't mean that?
A. I didn't mean the same as street cess pools are.
Q. You say the streets around there are not paved, Mr. Lynch?
A. I said the Coca-Cola place was macadamized.
Q. Isn't it a fact that the street on both sides of that building is paved?
A. Not as I remember, not as I remember Coca-Cola Place.
Q. Do you say it was not, do you undertake to so testify?
A. It was not paved on both sides of the building.
Q. Yes, I understand you to have said, as I remember it, that it was macadamized on Coca-Cola Place.
A. Yes, on Coca-Cola Place and on Edgwood Avenue—
Q. (Interrupting.) What kind of paving on the other side?
A. I don't remember at that time whether they were little blocks or whether it was stone pavement, it was a paved street.
Q. Well, it was paved on both sides?
A. No, sir, on Edgwood avenue it was paved, and on Coca-Cola Place it is macadamized.
Q. What do you mean by macadamized, do you mean covered with these cobblestones, don't you?
A. No, sir.
Q. Isn't it a fact that Coca-Cola Place was covered with cobblestones?
A. Not to my knowledge.
Q. Not to your knowledge?
A. No, sir.
Q. It is your recollection, sufficiently definite for you to testify that Coca-Cola Place was not paved with cobblestones?
A. Yes, sir.
Q. You deny it absolutely?
A. That it was paved with cobblestones?

Q. Yes?

A. If it was, the dirt was on it so much, on top of it, you could not see the cobblestones.

Q. You could not see the stones if they were there, is that what you mean to say?

A. Yes, sir.

Q. You are certain of that?

A. Yes, sir.

Q. You are absolutely certain of that?

A. Yes, sir.

Q. Assured of that positively?

A. Yes, sir, I am.

Q. Now, were you back there at this place at any time, Mr. Lynch, between the visit you made in July and the one and Dr. Kebler made the following October?

A. Yes, sir.

Q. How many times?

A. I can't recall that; I used to drop in there when I went down that way.

Q. You didn't make any inspection of the plant between those two dates?

A. No, I made—not that I made any report on.

Q. You made no inspection of the plant at all, I said.

A. Well, I went downstairs and was up in the first floor.

Q. Well, I didn't ask you that—what was the date of that trip?

A. I could not give you the exact date of that.

Q. Have you got any memorandum in your book?

A. No, sir.

Q. You are unable to state the date of any visits you made between the one in July at which you made this inspection and as testified about and the visit that you and Dr. Kebler made there on October 20?

A. Not the exact dates. I would drop in down there.

Q. To pay a visit to Mr. Candler?

A. No, sir, I didn't see Mr. Candler. I think I was in there once in that time and saw Mr. Candler.

Q. Who did you go to see?

A. Not anybody. I just walked in there.

Q. What were you doing down there?

A. Looking around.

Q. Did you have any instructions to go there and make any further inspection?

A. Not more than general instructions, just visiting food factories in our territory.

Q. You only recollect seeing Mr. Candler one time on these visits?

A. Only one time between when—I saw Mr. Candler twice, I remember of; I may have seen him more.

Q. You remember how many times that you made these casual visits between the one in July and the one in October?

A. No, sir.

Q. You don't undertake to say how much examination you made or anything of that kind?

A. No.

Q. Now, then, when you and Dr. Kebler went there in October, what was the purpose of that visit?

A. To make another inspection.

Q. You went to Mr. Howard Candler, did you, and told him you were coming to make an inspection?

A. Yes; we met him that day.

Q. Did you when you went to the factory to make the inspection, did you call him out and tell him you came for that purpose?

A. Well, as I remember it one of the employes told Mr. Candler.

Q. You and Dr. Kebler got there at the noon hour when Mr. Candler was away?

A. No, sir.

Q. You did not?

A. No, sir, not my recollection; the fact of it is I know we did not. We went down immediately after breakfast.

Q. Was Mr. Candler there?

A. He was there, I don't know whether he was there—I don't know where he was when we got there. He was there he met us there.

Q. Did you see him the first thing when you got there?

A. No. sir

Q. What did you do the first thing?

A. We went around the factory.

Q. Why didn't you go and see Mr. Candler, the head of the factory, and tell him you were there and what you were there for?

A. Sometimes we don't do that.

Q. Did you have any reason for not wanting Mr. Candler to know you were in there?

A. I had no particular reason.

Q. Why didn't you go to the head of this establishment and tell him as to what you had done on the other occasion and had come back in your official capacity to make an investigation of his plant?

A. Well—

Q. (Interrupting.) I mean as you did on the other occasion, go to him?

A. Well, on the other occasion I was stopped at the door and had to tell my business at the front door, to a young man who was in charge there, and the other time he let me in.

Q. How was that?

A. The first time there was a sign "No Admittance" on the door and I went in there and a young man was in charge, I guess he was there in the capacity of a shipping clerk or something, and he wanted to know my business and he referred me to the office, and on the first occasion I saw Mr. Candler.

Q. Well, you told him what your business was?

A. Yes, sir.

Q. And he after you did that showed you over the plant?

A. Yes, sir.

Q. Why was it on the second visit that you did not take that same course?

A. Didn't want to.

Q. Why not?

A. I didn't want to.

Q. Did you have any reason to sneak around and make an inspection of that plant when the manager was not there?

Mr. Miller: I object to that question; it is not a proper question.

The Court: Yes, I think the question is objectionable.

BY MR. SIZER.

Q. Did you have any reason for wanting to go into that plant when the manager was not there, and inspect it?

A. No, sir, I had no reason.

Q. You had no reason and Dr. Kebler had none?

A. I can't say about Dr. Kebler, I know I had none.

Q. Isn't it a fact that the first that Mr. Candler knew of you and Dr. Kebler being there, you were up in the rafters, next to the ceiling of the plant on the first floor?

A. I didn't catch that.

Q. Well, I say isn't it a fact that the first that Mr. Howard Candler knew of you being there was when you were up next to the rafters of the ceiling of the plant of the first floor?

A. I don't remember. I don't know just where Mr. Candler came from, he came down to the office and met us.

Q. You remember about crawling up among the rafters?
A. Me?
Q. Yes, you.
A. No.
Q. Do you mean to say were not up there?
A. I don't see how I could get up there.
Q. Now, Mr. Lynch, were you not up in these rafters?
A. No, sir.
Q. You were not?
A. No, sir.
Q. You never got up among them?
A. Well, there is a stairs going up from the basement, yes, I could see the rafters there.
Q. You were up there next to the ceiling, up among the rafters when Mr. Candler came in?
A. I was on these stairs—yes,—I don't know whether Mr. Candler met me there or not.
Q. Well, at some period of your visit you did get up in the ceiling, next to the ceiling, among the rafters?
A. Yes, sir.
Q. And Dr. Kebler was there with you?
A. I didn't get up among the rafters in that sense, I was on the stairs.
Q. How far were you from that ceiling?
Mr. Miller: Which ceiling?
Mr. Sizer: He understands me.
The Witness: You mean where? Do I understand you mean the ceiling of the basement?
Q. Yes, on the first floor, how far were you from those rafters.
A. I could not say that.
Q. Well, you were a very short distance?
A. Yes, sir.
A. And the fact is if you had stood up there your head would have bumped against the rafters.
A. No, sir, not my head.
Q. How about Dr. Kebler's?
A. I don't know about that, I know I can walk up there.
Q. Well, what were you doing up there?
A. Looking in these tanks.
Q. Oh, you got up there to look down into the tanks?
A. I don't know whether we were going upstairs or downstairs.
Q. Could you see in the tanks, into the tanks there, without getting into that position?
A. From the floor of the basement?

Q. Yes.
A. See into the tanks?
Q. Yes.
A. No, sir.
Q. How did you get up there to look into the tanks?
A. I just went up on the stairs.
Q. Then you did get up there to look into the tanks?
A. Yes, sir.
Q. Now, who met you at the door when you went there on this business?
A. Who met me at the door?
Q. Yes.
A. Which door do you refer to, please?
Q. Any door, how did you get into the plant?
A. Walked in.
Q. Well, who met you at the door when you went in?
A. I don't recall that.
Q. Well, the fact is nobody was there?
A. Yes, sir, the employes were around there.
Q. Did you speak to any of them?
A. I did that young man there, I said: "Good morning" or something like that.
Q. Did you tell him you were going to make an examination.
A. No, sir. It was not necessary for me to do that; he knew who I was.
Q. Did you ask anybody's permission?
A. No, sir.
Q. You walked right in and proceeded to make such an examination as you wanted to?
A. Yes, sir.
Q. And you say you don't remember when it was you first saw Mr. Howard Candler on that occasion?
A. Is that on October 19th you refer to?
Q. On October the 20th, you said it was.
A. I don't remember when it was when I met him.
Q. Well, you had progressed a considerable ways with your investigation before Mr. Candler came along at that time?
A. I had been in there some time.
Q. Which one of these floors was it, Mr. Lynch, that you went up to look down at the tanks? Was it on the ceiling of that floor there or the basement ceiling?
A. The basement ceiling.
Q. The basement ceiling?
A. Yes, sir.
Q. Were you there up in the rafters on that other floor —were you ever up in the rafters on that other floor?

A. Up here. (Indicating on photograph.)
Q. Yes.
A. On the first floor as you go in?
Q. Yes. On the floor I pointed to you there. (Indicating on photograph.)
A. Why, no.
Q. "Why, no"?
A. Yes, sir.
Q. You never were up in the rafters on that floor?
A. No; I don't think the rafters show on that floor.
Q. You know or do you remember whether you were ever up there?
A. I know I was not.
Q. Can you say that Dr. Kebler was not?
A. I don't know.
Q. Was he with you and you were with him all the time making that examination?
A. Yes, we were together.
Q. Can't you tell whether Dr. Kebler was up there or not.
A. I didn't see him go up there.
Q. You didn't see him up there?
A. No, sir.
Q. You are sure you didn't see him up there?
A. No, sir; there is no way of getting up there.
Q. You are positive you didn't go up there?
A. Yes, sir.
Q. Did Dr. Kebler on this occasion get down on top of that tank in the basement?
A. Get out on top of that tank?
Q. Yes, sir.
A. Which tank do you refer to?
Q. The tank in the basement, the mixing tank.
A. The mixing tank?
Q. Yes.
A. Oh, I didn't know—I didn't understand you. I thought you were referring to the cooling tank.
Q. I am referring to the mixing tank.
A. No, sir, not to my knowledge.
Q. You didn't see him do that?
A. No, sir.
Q. Now, I want to ask you another question about this old colored cook you talk about here, that you talked about before noon. I understood you to say and you are positive on the proposition that that darky was chewing tobacco when you were making that examination?
A. Yes, sir.
Q. Now, suppose that darky and that Mr. Howard

Candler would both testify that the man never chewed tobacco in his life, are you sufficiently positive about it to be able to say they are both mistaken about that?

Mr. Miller: I object to that; I do not think that is proper. It is argument.

The Court: The objection is sustained.

Mr. Sizer: I want to know how positive he was as to that.

The Court: Well, you can ask him that.

BY MR. SIZER.

Q. You are willing to assert positively that he was chewing tobacco that day?

A. Yes, sir.

Q. And you are just as positive about that as about anything else you have testified to?

Mr. Miller: Now, I object to that, that is objectionable, as to whether he is as positive about that as to anything else he said he was positive.

The Court: I overrule the objection.

Mr. Miller: We desire to reserve an exception to the ruling.

A. Yes.

BY MR. SIZER.

Q. You are?

A. Yes, sir.

Q. You are sure?

A. Yes, sir.

Q. You could not be mistaken about it?

A. I don't see how I could be mistaken about it.

Q. I will ask you now about taking the samples out of the barrels and kegs up in Chattanooga. I believe you say you took one sample from one barrel and one sample from a keg down at the Coca-Cola Bottling Works plant.

A. Not from a keg at the Coca-Cola Bottling plant, there were no kegs there.

Q. Just from a barrel, then, there?

A. Yes, sir.

Q. You took one sample at the plant of the Coca-Cola Bottling Works?

A. Yes, sir.

Q. How do you say you got that sample, from the barrel?

A. In a jug.

Q. You poured it through a pipe?

A. Yes, poured it through a pipe which they had there and which they used, and they have an arrangement for hoisting the barrel up from the floor or off of the floor,

and they used this pipe, a sort of water pipe or metal pipe, and they fitted it into the barrel, it has a faucet on it, and they allowed me to use that; that set the barrel up for me on to this sling so as that stuff was run into my keg, or jug.

Q. Was that a metal pipe or a rubber pipe?

A. It was a metal pipe with a fauset to it.

Q. A metal pipe with a fauset to it?

A. Yes, sir.

Q. And you just set the jug under it and turned the fauset and let the liquid run down?

A. Yes, sir, set the jug under it.

Q. You set the jug on the ground?

A. I don't know whether I set it on the ground, I held it up under the fauset or set it down, I don't know which one I did.

Q. You don't know which one?

A. No, sir, I held it up, I believe; I know that the fauset went into my jug.

Q. What kind of a cork was put in the jug?

A. An ordinary new cork.

Q. Where did you get the cork?

A. It came with the jug.

Q. Did you sterilize it?

A. Yes, sir.

Q. How?

A. By steaming it.

Q. Now, the proper way of sterilizing a cork and the only sufficient way is to burn it in a Bunsen burner?

A. Well, I can't qualify as an expert on that.

Q. Well, the fact is all you did with the cork in order to sterilize it was to put it in steam?

A. Boiling water.

Q. Boiling water?

A. Yes, sir.

Q. Well, you put it in boiling water and took it out in your hands and put it in the jug?

A. Yes, sir.

Q. You put it in the jug with your hands?

A. Yes, sir.

Q. Now, when you went down to Trigg, Dobbs & Co., how did you fill the jug down there?

A. The same way.

Q. Did you take this pipe from the bottling works plant down there?

A. Yes, sir.

Q. Carried it in your hands?

A. Yes, sir.

Q. And sterilized it after you got it down there?
A. No, sir, before I left the Coca-Cola Company.
Q. You sterilized it before you left the Coca-Cola Company's plant and carried it down in your hands?
A. Yes, sir, with both ends plugged.
Q. What did you have it plugged with?
A. With cotton.
Q. Where did you get the cotton?
A. I bought it in one of the drug stores here.
Q. And you took it in your hands, did you?
A. Yes, sir.
Q. You took it and stuck it in with your fingers and carried the pipe down from the Coca-Cola Company to Trigg, Dobbs & Co.?
A. Yes, sir.
Q. That is several blocks?
A. Yes, sir.
Q. About how many million bacterie could that pipe dition?
A. I am not qualified to answer.
Mr. Miller: He has not qualified—not as many as you would have accumulated in these settling tanks at the Coca-Cola factory, I am sure.

BY MR. SIZER.

Q. Did you put the cotton in the end of the pipe before you sterilized it or afterwards?
A. Afterwards.
Q. After you sterilized it?
A. Yes, sir.
Q. You sterilized it first and put the cotton in the ends?
A. Yes, sir; immediately afterwards.
Q. Did you not take these samples and divide them up into three parts and leave one at the place where you got the samples?
A. It is not necessary, it is not required.
Q. Now, I did not ask you that.
A. No, sir.
Q. I ask you whether you did it or not.
A. No, sir.
Q. You didn't leave a sample there at the Triggs, Dodds Company or at the Coca-Cola Bottling Works.
A. No, sir, I did not.
Q. I want to ask you about the process of stirring the syrup in the kettle. You say that was done with a shovel?
A. I said I could not state that.

Q. Now, didn't you state in your examination in chief that it was stirred with a shovel?

A. I said I thought that, I didn't remember that point.

Q. Or a paddle?

A. I used the term "paddle" but I said I didn't remember positively how it was done.

Q. You don't know whether it was a paddle or a shovel?

A. No, sir.

Q. Mr. Lynch, to refresh your recollection, it is a fact that the instrument with blades on it that revolves in that kettle, something like the blades of an ice cream freezer, the blades on an ice cream dasher—

A. In the simple syrup kettle?

Q. Yes, sir.

A. I said I could not testify as to that.

Q. You do not know?

A. No, sir, I do not recall.

Q. What do you mean by "simple syrup kettle?"

A. The sugar syrup kettle.

Q. That is the big vat, the first one?

A. Yes, sir.

Mr. Sizer: Well, that is all.

RE-EXAMINATION, BY MR. MILLER.

Q. Mr. Lynch, what is the color of the Coca-Cola of the Coca-Cola syrup after the ingredients are all mixed?

A. You mean the finished product?

Q. Yes. That you got and sent in to Washington.

A. It is the color of caramel or sugar coloring, or brownish red.

State whether or not that syrup as it appeared, whether you could see and detect in that as clearly foreign substances as you could before the coloring matter was added.

Mr. Sizer: We object to that. There is no proof that there was any foreign substance in there.

Mr. Miller: I hope to prove that finally; can't prove it until we get the analycists on.

Mr. Silzer: That is not a question of fact. That is a mere matter of opinions, that any man might testify to as well as this witness.

Mr. Miller: I submit that the question is competent.

Mr. Sizer: He is not an expert and not qualified as an expert.

The Court: I will overrule the exception.

Mr. Hirsch: We will note an exception to the ruling.

BY MR. MILLER.

Q. State, Mr. Lynch, whether or not after this color-

ing matter is added, the caramel or whatever it may be, one could as easily see and detect foreign substances in this mixture, such as grass or straw or any foreign substance, as he could before the coloring matter is added.

A. No, sir.

Q. Now, I neglected to ask this question in chief and I will ask it now, and if it is objected to I will ask leave to ask it. What kind of barrels were used for shipping Coca-Cola?

A. Barrels which had formerly been used for whisky.

Q. Where were these barrels, whisky barrels, stored?

A. Some of them were stored in the cooperage room and some stored out in the back yard of the factory.

Q. Before these whisky barrels were used for the Coca-Cola syrup, to be put in them and shipped out, were they not sterilized in any way?

A. There was an attempt made—they were not sterilized, there was steam put in them, just put over a steam jet for a few minutes and cold water run through them, and they put them to one side and painted them red.

Q. State whether or not any street cars pass nearby this Coca-Cola factory or building in Atlanta.

A. They pass down Edgewood avenue.

Q. Were there or not any open windows from Edgewood avenue into the factory?

A. Yes, sir, several open windows into the basement of the factory.

Q. Was that or not on the side where these cooling tanks were?

A. Yes, sir, the cooling tanks, some of them were against these windows.

Q. State what, if any, conversation you had with the president of the Coca-Cola Company at the time of your visit there, either of your visits to the factory, from July, 1909, or October 20, 1909, and prior to this seizure?

Mr. Sizer: We object to that.

The Court: The objection is sustained.

BY MR. MILLER.

Q. Did you or not have any conversation with Mr. Asa G. Candler, the president of this company, and who has verified the answer in this case as to your visits to this factory just immediately prior to this seizure and especially prior to that time, and in which he strenuously objected to your inspecting the factory?

Mr. Sizer: We object to that, your Honor. We are objecting to the form of the question.

BY MR. MILLER.

Q. And in which he registered any protest against your being in there.

Mr. Sizer: We object to that, it is not any more competent to ask him the question in that way than in the manner in which he asked it a while ago.

The Court: I think the court is objectionable in the form put, but the question may be—whether he had a conversation with the president and he objected to his visiting the plant.

BY MR. MILLER.

Q. I will ask you then as I tried to do at the outset, whether you had a conversation with the president of the Coca-Cola Company prior to this seizure, and especially prior to the occasion of one of your visits to the factory and at a time when you had made any purchase at the factory of any of the product used in the making of Coca-Cola, and tell what that conversation was.

Mr. Sizer: We object to that.

The Court: I don't admit or hold the question competent in the broad form it is put, or any statement the president made, but I only allow the statement of the president with reference to the fact that the witness had been there before and his expressions in reference to that subject are admitted; otherwise not. If the president of the company made any statement to you in reference to your prior visits or to the fact of your visit, you may testify as to that.

The Witness: He did not refer to my former visit but to the one that I was on then.

Mr. Miller: This was prior to the seizure—I wish the Court to thoroughly understand our position—we do not even want anything here that is not competent even though it might inadvertently creep in. Our position is that the president of the company, knowing this man's official connection and knowing of the reason that took him to the factory, forbade him or practically forbade him the factory.

The Court: Anything as to his objections as to going into the factory you may prove.

Mr. Sizer: I want to call attention to the fact that Dr. Candler did not object to the witness' visit he had made when Howard Candler was along with him, but President Candler objected to his going in there without his being with him.

The Court: He may bring out the facts—

Mr. Miller: I am asking him in respect to a visit that adverse counsel asked him about when Dr. Candler and he

were there, and whether or not he had any conversation with Dr. Candler, with the president of the company, as to that visit, and if he did, to tell what it was.

Mr. Sizer: That was after the seizure; after the shipment was made on the 20th of October.

The Court: The exception is overruled and he may proceed.

Mr. Hirsch: We note an exception.

The Witness: Do you mean to say that Mr. Candler referred to Dr. Kebler's and my visit.

BY MR. MILLER.

Q. Yes, Dr. Kebler's and your visits, or any purchases you made while there, or in reference to your official conduct while there?

A. I went down there to purchase some Merchandise No. 5.

Q. Is that or not a product that is used in the making of Coca-Cola?

A. Yes, sir, it is.

Q. Tell what occurred.

A. I had met Mr. Howard Candler that morning and obtained from Mr. Howard Candler—or he gave me, a sample out of a barrel of this mixture. I was up in his office and went up in the office and selected that sample there. I offered him payment for that sample, what is known as a form voucher that the inspector fills out and the members of the concern signs it and he mails it to the Department, and the disbursing officer pays for it; and Mr. Howard Candler filled out the form and came back with his father and said the gentleman was his father.

Q. Was that or not Mr. Asa G. Candler, president of the company?

A. Yes, sir, and his father was very excited, he said he was not going to let me have the sample, he said: "By God, if I had been here you would not have got it; we have got nothing here to sell the Government and I won't take your voucher." He was very angry and very excited and in the conversation referred to Dr. Kebler as "A God-damned carpenter," if I remember the conversation. He was very excited and very much worked up and very nervous.

Q. How, when you speak of Dr. Kebler being next to the rafters, when you spoke of that a while ago, did you mean the rafters that were on top of the building or these stringers that went across above the cooling tanks?

A. Well, the only time I saw Dr. Kebler near the raft-

ers was when he was going up and down the stairs with me.

Q. Going up and down which stairs?

A. The stairway from the first floor into the basement.

Q. How, at the time you had this conversation with Mr. Howard Candler, this first conversation, about the ingredients that went into the mixture, and at the time the cook came in to get the caffeine, I will get you to state whether or not you had asked Mr. Howard Candler how they were then making Coca-Cola.

A. Yes, sir.

Q. And state whether or not his answer was in response to your question.

A. It was.

Q. Well, now, then, if he told you whether or not they put any caramel, burnt caramel or caffeine in that mixture that they were then mixing, tell what in substance he said.

Mr. Sizer: I object to that.

The Court: The exception is overruled.

Mr. Hirsch: We note an exception to the ruling.

The Witness: He gave me the different Merchandise numbers; all of these products are known by different Merchandise numbers and I asked him for them and I made notes at the time just where the products were and they were put in. I had put down these Merchandise numbers and Mr. Howard Candler stated to me that he would rather that information would not go out of the factory, get out of the factory.

Mr. Sizer: (Interrupting.) We object to that.

The Court: I sustain the exception to that answer.

BY MR. MILLER.

Q. Did you or not surrender that memoranda to him after he requested it back?

A. I tore the page out of my diary and gave it to him, of the Merchandise numbers, what the different Merchandise numbers were.

Q. State whether or not these merchandise numbers compared to the numbers of ingredients used in making the mixture.

A. No, sir, not to my knowledge—you mean Merchandise No. 1 was the first put in?

Q. No, I mean they had a merchandise number for 1, 2 and 3; that is, for every ingredient they had or that they put in it?

A. Yes, sir.

Q. Now, in that conversation did he or not tell you how

much caffeine was put in these 1200 gallons of the mixture?

A. No, he would not make that statement.

Q. He didn't make that statement?

A. No, sir.

Q. Did he or not state to you there was caffeine put in that mixture?

A. Yes, sir.

Q. Did he tell you where they bought the caffeine?

A. As I remember the tins were marked.

Mr. Sizer: (Interrupting.) We object to that.

The Witness: He told me.

Mr. Sizer: We object to that.

The Conrt: What is the ground of the objection?

Mr. Sizer: He asked him if Mr. Candler told him where he bought it.

The Court: That exception is sustained. If the answer does not refer distinctly to what was going on at the time I don't think it is competent; otherwise, it is.

BY MR. MILLER.

Q. Did you or not state that Mr. Candler told you they were adding caffeine into this mixture as they made it, of Coca-Cola syrup?

A. Yes, sir. He said they put caffeine in it.

Q. And you saw the caffeine?

A. Yes, sir.

RE-CROSS-EXAMINATION.

BY MR. SIZER.

Q. Mr. Lynch, you say that this syrup was put in Whisky barrels?

A. Yes, sir.

Q. How do you know?

A. I saw the whisky barrels there and I have seen old whisky barrels, that have been used for whisky.

Q. Well, how do you know it?

A. Some of them had the labels on them, and some had the gauge marks on the bung hole and bung staves.

Q. How many did you recognize as barrels that had previously been used for whisky?

A. I didn't make any count of them.

Q. Now, on which visit did you see the barrels of that kind there in the yard?

A. July 19.

Q. Was that on the first visit you made there?

A. Well, the first I made after the inspection I saw them there.

Q. I say, that was the first visit you made or the first inspection you have testified about.

A. Yes, sir.

Q. You say they were sterilized by taking them and holding them over the steam before the Coca-Cola was put in them?

A. Yes, sir.

Q. Well, isn't that the proper way to sterilizing a barrel?

A. I don't think so; that depends a good deal on how hot that steam is you get in there.

Q. You don't know much about the proper sterilizing of things, anyway, do you, and did not you testify a while ago that you were not an expert on that sort of thing?

A. Did you ask me if I testified about the barrels that way?

Q. I say, didn't you testify that they sterilized the barrels by holding them over a steam jet?

A. I think I corrected the attorney, Mr. Miller—and stated that I didn't know about the sterilizing, that they just put it over a steam jet and let it rest there a few minutes, and took it off and put it in a cold water jet and turned it over and had it painted on one side.

Q. Then they did sterilize the barrels by holding them over the steam jet?

A. I won't say they did.

Q. You won't say they didn't?

A. I don't think they could sterilize them in the time they had them there.

Q. I ask you the question only if it is not a fact and you do not know about the proper method of sterilizing things and that you testified with reference to this on direct examination, that you did not know.

A. We as inspectors we have instructions about the sterilizing of vessels when we are out where the Department cannot send sterilized vessels, and these instructions—

Q. (Interrupting.) I didn't ask you anything about any instructions.

A. Well, I am trying to show you how I knew these things.

Q. Well, have you any other knowledge about the proper methods of sterilizing than such knowledge as you get from instructions?

A. Yes, sir, I have been connected with laboratories and seen sterilizing done and have been around laboratories and have had several years' experience in laboratories in Massachusetts where I saw sterilizing done and

helped to do it.

Q. Then why did you testify when I asked you about sterilizing a cork, as to whether the method you adopted was a proper method, why did you answer that you were not an expect on that proposition.

A. I don't think I am competent to say which is the proper way.

Q. You are no more competent to say which is the proper way to sterilizing a cork than to say which is the proper way of sterilizing a barrel?

A. I am competent to say that those barrels could not be sterelized in the time they were left over that steam jet.

Q. How long does it take to sterlize a barrel?

A. I don't think it could be done in less than a half hour, or an hour or an hour and a half.

Q. Do you mean to say, Mr. Lynch, it would take a half hour or an hour or an hour and a half to sterilize a barrel over a steam jet?

A. Yes; those are our instructions.

Q. I don't ask you anything about your instructions. I ask you if you mean to assert that as an absolute fact.

A. No, sir; I say it cannot be done in two minutes.

Q. How do you know that—how long does it take to kill a microbe?

A. I am not qualified to answer that.

Q. If you don't know how long it takes to kill a microbe, how could you testify—how are you able to testify that it could not be done in two minutes?

A. Well, common sense tells you that.

Q. Common sense tells you you can't kill a microbe in two minutes?

A. Yes, sir, over a jet of steam.

Q. It depends on the size of the microbe, doesn't it?

A. I don't know about that; I am not a bacteriologist.

Q. You don't know much about microbes?

A. No. sir, I don't know anything about them.

Q. Now, referring again to these barrels out in the yard, you say the brands on them indicated that they had been used for whisky—do you know as a matter of fact whether or not these barrels were ever used to put Coca-Cola in them?

A. Why, yes; I saw some second-hand barrels being prepared for cooperage.

Q. But these barrels were in the yard which you saw that bore indications that they were second-hand whisky barrels, and I ask you now did you ever see one of these barrels filled with Coca-Cola syrup?

A. No, I never saw the Coca-Cola syrup put in it. I

never saw it filled with Coca-Cola syrup.

Q. And you were inferring that they were going to use them for that purpose because you saw them in the yard out there?

A. Well, if I am not mistaken, I referred to that matter and the genetleman—

Q. I am not asking you what any gentleman said to you, but as to your knowledge of it.

Mr. Miller: Well, your Honor, I insist that he must either withdraw the question or allow the witness to answer it.

The Court: The witness answers of his own knowledge and counsel has the right to require answer in response to the question from the knowledge of the witness. If the witness wants to volunteer anything else, then he can do so.

Mr. Miller: The question before that was not limited to his knowledge; he asked him if he inferred from certain things that they were being used—

The Court: I would like to have the question read.

(Thereupon the question was read as follows: Q. "You were inferring that they were going to use them for that purpose because you saw them in the yard out there?")

The Court: The question is broader than I thought; I think the answer would be all right.

Mr. Sizer: He can answer whether he did infer from that—I don't ask him how he got it, I ask him whether he inferred they were usd for Coca-Cola from the mere fact that they were out there in the yard.

The Court: He may answer and explain why he inferred.

The Witness: I saw these empty barrels stored in the yard, and I saw some of them down in the basement in the cooperage room being coopered up, and I saw some of them painted, and they were barreling Coca-Cola there, and a painting them similar to the way they were all painted, the way all Coca-Cola barrels are painted, and I could not see what else they were using them for.

BY MR. SIZER.

Q. Did you know as a matter of fact that these barlers were discarded and defective and that they were not going to be used?

A. They were not.

Q. You know they were not?

A. Yes, sir.

Q. Why do you assume that they were not thrown out there?

A. That they were not defective barrels?

Q. Yes.

A. In the first place there were too many of them to be defective whisky barrels.

Q. Just because there were too many of them you know they were not defective barrels, is that it?

A. Well, there was a good quantity of barrels out in that yard.

Q. But just to get back and answer the question that I asked you, how do you know that these barrels out there in the yard were not defective and discarded barrels?

A. Discarded and defective from where, please, sir.

Q. Discarded from any place—if they were not discarded and defective barrels how do you know they were not, if you say they were not?

A. Well, they did not have the appearance of being discarded barrels.

Q. Well, to get back to the question I asked you a while ago, you said you did not see any of these barrels filled with Coca-Sola syrup, that you did not see one of these barrels that you call whisky barrels filled with Coca-Cola syrup?

A. I saw these barrels being painted.

Q. Well, answer my question,—did you ever see one of these so-called whisky barrels being filled with Coca-Cola syrup?

A. No, sir, not actually being filled with it.

Q. Now, then, about the whisky barrels — the very fact that it is a whisky barrel, that it has had whisky in it, that very fact that it has had whisky in it sterilizes it?

A. I don't know; that depends, I would think, on how long that barrel has been open.

Q. Do you know what would be the temperature of the steam that they let into these barrels when you say that they held them over the steam jet?

A. Do you mean what is the temperature of the steam?

Q. Yes.

A. No, I do not.

Q. You did not take the temperature?

A. No, sir; it came direct from their boiler.

Q. Well, the sterilizing quality of the steam depends very much on its temperature?

A. I don't know anything about the temperature of steam, I am not qualified on that.

Q. You don't know anything about it and don't know how high the temperature of steam would have to be in order to possess sterilizing properties?

A. No, I do not know.

Q. You do not know about that?

A. No, sir.

Q. I want to ask you about this conversation you had with Mr. Asa G. Candler. You say he got profane and swore when you talked with him?

A. Yes, sir.

Q. You are certain of that?

A. Yes, absolutely.

Q. Who was present at that time?

A. His son and myself.

Q. He and his son and yourself?

A. Yes, sir.

Q. That is, Mr. Howard Candler?

A. Yes, sir.

Q. And Mr. Asa G. Candler?

A. Yes, sir.

Q. And yourself?

A. Yes, sir.

Q. Now, anybody else?

A. No, sir.

Q. No one else?

A. No, sir.

Q. Now, what was the date of that occurrence? Was that after you and Dr. Kebler had gone down there and made this inspection on the 20th of October?

A. No, sir, I don't think so.

Q. Mr. Lynch, was it after that time you went down to buy the samples of Merchandise No. 5?

A. After the seizure was made?

Q. Yes.

A. You say, was it after that?

Q. Was it after the seizure was made, was what I asked you.

A. I can't give you the date on that.

Q. I didn't ask you for any date but I asked you if you didn't recollect distinctly that it was after the seizure was made that you went down to buy the sample of Merchandise No. 5 and had this talk with Mr. Candler?

A. Well—

Q. (Interrupting) To refresh your recollection, isn't it a fact that the occasion of Mr. Candler's displeasure was the fact that you and Dr. Kebler had gone around there in that informal sort of way and went in and under-

took to examine their premises there without seeing one of the managers?

A. No, sir, he never referred to our visit.

Q. He never referred to the fact that you and Dr. Kebler got in without letting them know you were there?

A. No, sir.

Q. What was it he was expressing displeasure about?

A. Coming there and getting a sample of No. 5 Merchandise and trying to offer to pay for it, the Government trying to get this stuff from him and pay for it.

Q. Then he didn't get mad when you came down there and inspected the plant when the manager was present but did complain when the manager was absent?

A. I deny we inspected the plant when the manager was absent.

Q. Well, you commenced it in his absence.

A. Yes, sir.

Q. Doctor Candler did not express any displeasure at that?

A. No, sir.

Q. But he did express a displeasure because you were trying to buy Merchandise No. 5 from his son?

A. He was objecting to my being in there, to my getting the sample or the Government owning the sample, and referred to the fact that he would not take the voucher.

Q. Then he was mad because the Government wanted the sample?

A. I don't know what he was mad at.

Q. He didn't tell you what he was mad about?

A. No.

Q. But your recollection is very definite that he in no way referred to the manner in which you and Doctor Kebler had made that examination on October the 20th?

A. I do not recall his referring at all to that.

(Witness excused.)

Thereupon,

H. C. FULLER,

the next witness produced upon behalf of the Government, of lawful age, first being sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER:

Q. Dr. Fuller, what is your profession?

A. I am a chemist.

Q. What institution or institutions, if any, are you a graduate of?

A. I am a graduate of the Worchester Polytechnic Institute, Worchester, Massachusetts.

Q. What number of years practical experience have you had as a chemist?

A. I have had about ten years' experience as a chemist since leaving that institution.

Q. How long were you connected with that institution?

A. Four years.

Q. Did you do experimental work while connected with that institution?

A. Yes, sir.

Q. How long have you been connected with the Bureau of Chemistry at Washington?

A. Four years.

Q. What did you do prior to that time and after leaving the Polytechnic Institute at Worchester?

A. Prior to that time I was connected with the Mallicrout Chemical Works of New York City, and also engaged in experimental work with Parke Davis & Company of Detroit, Michigan, and Boston, Mass., and New York.

Q. What position do you now hold with the Bureau of Chemistry?

A. Assistant Chemist.

Q. Did you hold that position in October, 1909?

A. Yes, sir.

Q. State whether, about the time of the seizure in this case, that is in October, 1909, and towards the latter part there was received at the Bureau of Chemistry at Washington and came under your supervision any samples or purported samples of Coca-Cola syrup?

A. Yes, sir.

Q. Now, if the Bureau of Chemistry and you as one of its employes has a method or arrangement by which it can be determined whether a shipment is intact from the time it leaves the hands of an inspector until it is received by you, tell what that method is that is employed.

A. The seals which the inspector puts on his sample when he takes it are intact, and if the seals are intact when we receive it we know the product has not been opened or tampered with.

Q. Did you hear the testimony of the witness J. L. Lynch who has just left the stand?

A. A part of it.

Q. Did you hear that portion of his testimony dealing with the taking of the samples and the transmission of them to the bureau at Washington?

A. Yes, sir.

Q. State whether or not you received these samples,

these three samples that he referred to, identified with the serial numbers he gave?

A. Yes, sir.

Q. Did you or not make an analysis of any one or more of these samples?

A. I made an analysis of all of them.

Q. Of all of them?

A. Yes, sir.

Q. Did you or not make an analysis for the purpose of determining the caffein content?

A. Yes, sir.

Q. State if you can identify the serial numbers that were placed on the two jugs that were taken from the warehouse or storage room of Trigg, Dobbs & Company, as given by Mr. Lynch?

Q. You mean the inspector's number?

Q. Yes.

A. Yes, sir.

Q. Or the receptacle in which these shipments were received by you here in the court room, or I mean in this building?

A. Yes, sir.

Mr. Miller: We will have those brought in if you gentlemen would like to have them, be glad to have them brought in if you prefer. I take it they do not want it done. They are in the adjoining room, and can be produced if desired.

BY MR. MILLER:

Q. State whether or not these shipments were received by you with the seals intact in Washington.

A. They were.

Q. Now state whether the shipment from Triggs, Dobbs & Company with serial number 3324 thereon, being one gallon of the product that was taken out of the barrel of Coca-Cola seized,—that was the Ledger serial?

A. (Interrupting.) I never received any by such number.

Q. What was the number you received it by? GENERAL COX: 3967 and 68?

BY MR. MILLER:

Q. Give us the serial number that you received it by.

A. 3966-B, 3967-B and 3968-B.

Q. You received these three shipments?

A. Yes, sir.

Q. Now, which of these three was it that were taken from the one barrel seized in Trigg, Dobbs & Company's possession?

Mr. Sizer: I object to that.
The Court: Mr. Lynch has already testified that.
Mr. Miller: Very well.

BY MR. MILLER:

Q. Well, give us the analysis of that one keg, the gallon that came from the one keg of mixture 3966-B.
A. You refer to the caffein?
Q. Yes.
A. 1500.
Q. And that would be what proportion to the ounce of the mixture?
A. .92 grains per ounce.
Q. Now how about 3967-B?
A. 1.7 per cent, or 1.02 grains per ounce.
Q. And 3968-B?
A. 1.19 grains per ounce.
Q. That is one and nineteen hundredths grains?
A. Per ounce.
Q. Practically one and one-fifth?
A. Yes, sir.
Q. Now did you or not receive a keg of the mixture that was shipped to Washington from this same product known as 3980?
A. I did.
Q. State whether or not that was intact when received by you?
A. It was.
Q. How was that keg treated, Dr. Fuller, before making your final observations with respect to it?
A. The keg, you say?
Q. Yes.
A. The keg was placed on one end and allowed to stand untouched for three months.
Q. Well, then what did you do?
A. Then I bored a hole in the side of the keg about four inches from the lower part of it, from the base of it, and also bored a small hole in the top and allowed the syrup to run off down to the hole, and then I knocked out the top and filtered what was left here through a piece of filter paper and washed it with water afterwards.
Q. Have you or not that filter paper at hand?
A. Yes, sir, I have.
Q. I will get you to state what you found in this filtering of this product as to foreign substances.
A. Undissolved material, a little straw, and materials of a similar nature which looked like hay, and a part of a bumble bee, and some legs of insects and other extrane-

ous matter which was apparently dust or dirt.

Q. Have you those samples and will you please produce them as exposed on that paper?

A. All right.

Q. That is a part of what you got out of that keg?

A. Yes, sir.

Q. On this paper?

A. Yes, sir.

Q. What is this that is on this paper, that is a larger portion here?

A. A part of some insect, possibly a bumble bee or a wasp.

Q. Show it to the jury.

A. All right, sir.

Mr. Miller: Would you gentlemen like to see it?

Mr. Sizer: Yes.

BY MR. MILLER:

Q. Now, doctor, is the color of that paper due to the filtering of the Coca-Cola Syrup through it?

A. Will you ask that question again?

Q. I say, is the coloring of that paper that you have just produced before the jury due to its contact with this Coca-Cola Syrup, the filtering of this syrup?

A. This outside portion, the part that was not washed—I endeavored to get the extraneous matter in the center and not wash the outside part.

Q. Before you had used that paper on this sample, was it colored, or was that the color of the paper; just state what the color of the paper was.

A. It was white.

Q. What is its color now?

A. You mean what is the color of the paper?

Q. Yes.

A. The part where the material is is white and this part up here is brownish.

Q. What do you say caused the white portion in the center?

A. This was washed through with water.

Q. That is the central portion?

A. Yes, sir. It is difficult to wash out the sugar material entirely in such a large quantity from a big piece of paper, and I decided to put the dirt in this portion and wash that and leave this outside.

Q. And the coloring that is on the paper, the darker portion that you describe is due to what?

A. Due to the Coca-Cola.

Q. To the syrup?

A. Yes, sir.

Q. Now as a chemist and from experiments and observations you made from this syrup, I will get you to state whether or not in your opinion the mixture was of a character that the foreign substances of dirt and dust, if any there was, aside from what you have gotten from that keg, would have precipitated and settled in the bottom, or would some of it been drawn off by you?

A. Some of it would have been drawn off.

Q. Why would it not have precipitated and settled in the bottom?

A. This is what we call a very thick mixture, a syrupy mixture, and as such it would tend to hold up the lighter dust and particles which probably never would settle.

Q. Now, what is the color of the caffein, that is, ordinary commercial caffein that would be purchased and used in a mixture of that kind?

A. White.

Q. Crystallized like?

A. Yes, sir.

Q. Powdered?

A. Yes, sir.

Q. State whether or not you were able to determine that there had been any addtion or mixture of commercial caffein to that product, and if so how and why you determined that fact?

A. Well, I don't know as I quite understand your question, but I think it was all added to it.

Q. Now, what was that mixture composed of; tell us that?

A. I found present caffein and phosphoric acid, sugar, water, glycerin, caramel coloring and lime juice and essential oils, oil of cassia was prominent. I did not attempt to determine what the other oils were.

Q. Did you or not find any alcohol in it?

A. A trace of alcohol; a small quantity of alcohol.

Q. And now, what was the result of adding this caramel to the mixture?

A. It gives it a brown coloring.

Q. What is the color of the mixture before the caramel is added?

A. Well, I would not want to say as to that, because I never saw it mixed. I can state what a mixture of similar type would look like.

Q. Well, what would it look like?

MR. SIZER: I object to that. He says he don't know what the color of the mixture was before the caramel was put in.

The Court: Have you ever seen a similar mixture without caramel?

The Witness: Yes, sir.

Mr. Sizer: I object to anything about a similar mixture.

The Court: I mean mixed with the same ingredients, the same ingredients without the caramel.

The Witness: Yes, sir.

BY MR. MILLER:

Q. Tell us how that was, doctor; how it would appear?

A. It would appear nearly colorless, with a little shade of yellowish due to the lime juice and oil.

Q. Now state whether or not you found these substances that you have described in all these samples that you analyzed.

A. I did.

Q. Were you assisted by anyone in making any one or more of these analysis, or was there a check on your work by anyone else?

A. Yes, sir; there was by someone else.

Q. By whom, doctor?

A. By Doctor W. O. Emory.

The Court: What was the per cent of caffein in that keg?

The Witness: I will have to find what the number was.

Mr. Sizer: He said twenty hundredths of one per cent.

The Court: He didn't state the quantity in the keg.

The Witness: Do you mean where the dirt was?

The Court: Yes.

The Witness: It was not determined in the keg where the dirt was.

BY MR. MILLER:

Q. Doctor, are you acquainted with a substance known as "Merchandise No. 5," which is used in the making of Coca-Cola syrup?

A. Yes, sir.

Q. I will get you to state if it has any peculiar odor or smell?

A. It has.

Q. Have you or not analyzed Merchandise No. 5?

A. Yes, sir.

Q. Now, what are the contents of Merchandise No. 5, what did your analysis show?

A. This is a liquid preparation containing 16.1 per cent of alcohol, and a trifle over four per cent, 4.12 ac-

tually of what we know as non-volatile material.

Q. What is that?

A. Non-volatile material is the portion of the substance which is not evaporated; that is, if you take a certain portion and evaporate it upon a steam bath, there is a certain amount left which does not go over at a temperature of one hundred degrees — the degree of volatile principle, which was not alcohol, because alcohol would be volatile, was estimated, and the odor which was characteristic of this ingredient known as toluol.

Q. What is toluol?

A. Toluol is a liquid that is obtained in the distillation of coal tar—it is similar to benzoate.

Q. State what it is that you found in this Merchandise No. 5 that has a peculiar odor or flavor that causes you to recognize that?

A. It is toluol.

Q. Did you or not during either of the years 1908 or 1909 or 1910, or just before that, find any caffein in this Merchandise No. 5?

A. I did.

Q. What amount?

A. 1.001 per cent.

The Court: Is this Merchandise No. 5 an ordinary article of manufacture? Do chemists know what is meant generally by Merchandise No. 5?

The Witness: No, sir. It is not known, only in this drink.

BY MR. MILLER:

Q. State whether or not you have frequently analyzed Merchandise No. 5?

A. I have.

Q. Now then, I will get you to state, doctor, whether or not during the years 1908, 1909 and 1910, or either of those years, you conducted or prepared any mixture for use by the Bureau of Chemistry or any of its departments at Washington for animal experimentation consisting of caffein alone, Coca-Cola syrup or Merchandise No. 5 or one, two or three of these ingredients?

A. I prepared mixtures of water, caffein and Merchandise No. 5, and also mixtures of water and caffein.

Q. And to whom did you deliver these mixtures when you prepared them?

A. To Dr. F. P. Morgan.

Q. Is he present here? As a witness?

A. He is.

Q. Now, in what proportion did you mix those ingredients as respects caffein?

A. The caffein was present in the amount of one grain to the fluid ounce.

Q. In all instances?

A. Yes, sir.

Q. When you mixed the caffein with Merchandise No. 5, did you allow in that connection for the trace of caffein that was in No. 5, and add just enough to make up one grain to the fluid ounce, or how was that?

A. I didn't take that into account.

Q. Why so?

A. The amount I used was fifteen cubic centimeters to twelve hundred cubic centimeters; and the amount of caffein was so relatively small, I mean that which was added and considered caffein, it was considered—I mean that was added as straight caffein and it was considered neglible.

Q. Did you or not deliver to Dr. Morgan also Merchandise No. 5; that is, Merchandise No. 5, about which you have testified, unmixed with any other ingredient?

A. Yes, sir.

Q. It was the genuine Merchandise No. 5 that you gave him?

A. Yes, sir.

Q. What was the object in delivering these mixtures and that Merchandise No. 5 to Dr. Morgan?

A. He wished to experiment with them.

Mr. Miller: You may have the witness, Mr. Sizer.

BY MR. SIZER:

Q. When was it, doctor, that you say you made these analysis of Coca-Cola?

A. Beginning October 26, 1909.

Q. October 26?

A. Yes, sir.

Q. Well, now, you say beginning on October 26th; how long did it take you to make the analysis?

A. My report is dated November 10, 1909.

Q. So that you made the analysis between those two dates, and how many different samples did you analyze?

A. Three.

Q. All from one container, or from different containers?

A. From the three jugs that were received, from three jugs.

Q. What was the method of analysis by which you determined the contents of caffein in those jugs; I want you

to give that in detail and give it slowly so that the stenographer can get it.

A. I first took the specific gravity of the Coca-Cola and in order that in future determinations I would not have to weigh out from the balances every specific sample by taking the volume and multiplying it by the specific gravity you get that—

Q. (Interrupting) In this connection, tell us what the specific gravity was.

A. The specific gravity in the case of sample 3966-B at twenty degrees Centigrade was 1.2885; 3967-B, same temperature, 1.2518; 3968-B at the same temperature, 1.2471.

Proceeding with the analysis: Sixty cubic centimeters of the Coca-Cola syrup were carefully measured at twenty degrees centigrade and poured out in a dish and ammonia water added and allowed to stand over night. The material was then evaporated and extracted five times with alcohol. The alcohol does not mix with the syrup which has been evaporated until all the water is extracted. It will extract from it, however, certain substances which are very soluble in alcohol, and one of such is caffein, and in that way you can make rough separation of caffein from the body of the mixture and in the case of heavy syrup like this it is very difficult to work direct on that—you separate the caffein. The alcoholic experiments were then evaporated to verify for alcohol and the residue dissolved in water and ammonia added and shaken out four times with twenty-five cubic centimeter portions of Chloroform. Chloroform will not mix with water—it does have the object of removing from the solution in water certain substances, one of which is caffein. There are a large number of others which I will not describe now, and from experience it is shown that from a solution made alkaline with ammonia four shakings are sufficient to remove all of the caffein. Now, these take-outs of caffein were combined all together and evaporated to drive off all the chloride. This dissolved into dilute acid and a solution of iodine added. The solution of iodine is prepared in acid solution, throwing out all your caffein that may be dissolved. It throws it out qualitatively and by that I mean it throws every bit out that is in solution. The object of that precipitation was to get the caffein in such a condition that on a subsequent treatment it could be obtained pure, the first take out of it being impure and the result not showing the true percentage. This solution was allowed to stand over night and the next day it was filtered and washed with this iodine solution, and treated

with what we know as sulphuric acid; it is a solution of sulphur dioxide which is one of the chief ingredients from burning brimstone, which you get in your throat when you light a sulphur match. It has the property to break up the iodine. In this case it has the property of breaking up the compound of caffein. Subsequently add ammonia and shake out with chloroform and caffein is obtained in a very pure condition, the chloroform has evaporated. A small quantity of tar coal is added to it and then it is filtered into a weighed dish and the chloroform evaporated and the product or residue weighed. The residue in this instance or in all of these instances in these samples was pure caffein.

Q. Did you follow that same method with each one of these three samples?

A. Yes, sir.

Q. Now it is a fact, is it, that the Government chemists have experienced a great deal of difficulty in getting at the exact quantity of drugs in these soft drinks?

A. Why, I should say no to that.

Q. Did you read a paper before the Association of National Agricultural Chemists at the Raleigh Hotel on the 12th of last November on that subject?

A. I didn't read a paper, but I made some statements in connection with it.

Q. You didn't read a paper?

A. No, sir.

Q. Well, did you make some statement on that subject?

A. Yes, sir, I did.

Q. And the substance of your statement was published in the Post of the next morning, was it?

A. It was not.

Q. Well, there was a publication made that purported to give your statement?

A. Yes, sir; but it didn't state what I said.

Q. You saw that paper, did you?

A. Yes, sir.

Q. Now, I read this statement and ask you to indicate wherein it was incorrect:

"The drugs contained in most soft drinks—

General Cox: I object to the reading of that, because he said it did not state what he had said, and Mr. Sizer is now trying to inject into this lawsuit something somebody else said.

The Court: The objection is sustained. If you propose to contradict this witness as to statements he has made,

you can ask him, but you will have to lay your grounds for contradiction.

BY MR. SIZER:

Q. Did you make this statement at that meeting?

The Court: If it contradicts anything he has said.

Mr. Sizer: (Interrupting) That is to this point—it contradicts him to this point. He says now they have experienced no difficulty in ascertaining the quantity of drugs in soft drinks, and I am ready to show at the meeting if he made the statement he is quoted as having made, he did say that they were having difficulty—I will read you this statement, and then see whether or not you made it.

The Court: I don't think it competent to read the statement. You may ask him if he didn't make that statement, without stating whether it is in a newspaper, or where.

BY MR. SIZER:

Q. I will ask you to state whether or not you stated at this meeting of the Association of the National Argricultural Chemists at the Raleigh Hotel on the 12th of last November that the Government bureau realized that soft drinks contained alcohol, opium, and so forth, but you had been able to fix the quantities of the drugs contained therein?

A. No, sir; I never did.

Q. Were you present at that meeting?

A. Yes, sir.

Q. Did you make any statement with respect to that matter?

A. Yes, sir; with respect to the analyses of soft drinks.

Q. Did you make any statement with respect to the difficulty to ascertain the quantity of drugs in soft drinks?

A. Yes, sir.

Q. What did you say on that subject?

A. I stated at the time these investigations were taken up there were no methods known at that time.

Q. Did you state no methods known at the time you made the statement?

A. No, sir.

Q. That statement was made last November?

A. Yes, sir.

Q. You say you made these analyses of coca cola?

A. Yes, sir.

Q. And you did state in that meeting at that time that at the time the investigation was taken up that no method was known to determine the quantity of drugs in soft drinks?

A. Not as to the investigation of this shipment of coca cola.

Q. Well, to what time did you refer?

A. To the time that the department first began investigations of medicated soft drinks.

Q. What time was that?

A. Nearly four years ago.

Q. Did you, in that statement to the meeting of the chemists, limit your remarks to that period, or did you state generally there had been no way ascertained or definitely fixing the quantities of drugs in these soft drinks?

A. I never made any such a statement.

Q. Did you in that meeting limit your statement as to the difficulty in ascertaining the quantity of drugs in soft drinks to the date on which these investigations on the part of the government commenced?

A. I said at the time the investigation began there were no known methods.

Q. I believe you say you saw that statement in the paper, and that you simply made an oral address to the meeting?

A. Yes, sir, I did.

Q. You are giving now your recollection about what you said?

A. I am stating what I said.

Q. Did you make any correction in the paper of that publication that came out in the Post the next morning?

A. I did not. I wrote a letter to Dr. Wiley explaining what I did say.

The Court: That is immaterial.

BY MR. SIZER.

Q. Now, I believe you say this sample that you sifted through the paper and got the animal remains out of stayed for some time in the container?

A. Yes, sir.

Q. How long?

A. Three months.

Q. Did you make a similar investigation with respect to the other samples of coca cola?

A. No, sir.

Q. And when you undertook to take this sample and make this examination after the container or jug had sat for three months, I believe you say that was a keg, though?

A. Yes, sir; that was a keg.

Q. It was the keg that you got this sample out of?

A. Yes, sir.

Q. And you took the contents out from near the bottom of the keg?

A. Yes, sir.

Q. And you sifted it or filtered it through a piece of paper?

A. Yes, sir.

Q. When was it now that you made that experiment?

A. No, I have not that.

Q. It was perhaps about three months after the date on which the samples reached Washington?

A. Yes, sir; about that time.

Q. Now, how did you identify this substance that you call toluol in merchandise No. 5?

A. By the odor.

Q. Is that the only way?

A. Yes, sir.

Q. How did you identify caramel?

A. Why, by the appearance, simply.

Q. Why, the fact is there is no very definite or exact test known for caramel, is there?

A. I don't know of any.

Q. Do you know of a substance called Xylol?

A. I know about it. I am not very familiar with it.

Q. Is there any difference between xylol and toluol?

A. Why, there is a difference chemically.

Q. What is the difference?

A. I do not know exactly the difference.

Q. What is xylol obtained from?

A. Coal tar.

The Court: What has the bearing of this whole question of toluol on the case?

Mr. Miller: I asked about it so he could identify it.

The Court: There is no charge about any coal tar preparations here.

Mr. Miller: No. I am trying to identify the various samples, and what his analysis was.

BY MR. SIZER.

Q. Now, this toluol comes only from coal tar?

A. Yes, sir.

Q. Are you able positively to state that this merchandise No. 5 contained that substance?

A. I should say that it did.

Q. Judging simply from the odor?

A. Yes, sir.

Q. And anything else?

A. Yes, sir.

Q. Is there any difference between the odor of xylol and toluol?

A. I don't know.

Q. If there is any difference, you don't know what it is?

A. They are very similar substances.

Q. Benzol, xylol and toluol come from coal tar?

A. Yes, sir.

Q. Is there any similar organic substance that has a similar odor to xylol and toluol?

A. I don't know of any.

Q. I want to ask you, doctor, if you made any test of this substance to see whether toluol would burn — it is a very inflammable substance, is it?

A. Yes, sir.

Q. Then why didn't you do that in order to be certain as to what it was?

A. There was not enough of it there, simply to give the odor to the material.

Q. Where was it and in what particular room or building that you took the contents out of this case and ran it through that piece of paper?

A. It was in our supply room, or store room.

Q. The government store room?

A. Yes, sir.

Q. In Washington?

A. Yes, sir.

Q. What was the size, Dr. Fuller, of that keg of coca cola that you took the contents out of three months after it came there? About how many gallons did it contain?

A. I don't know exactly. They call them ten-gallon kegs, but I don't know from measurement.

Q. It looked like something near ten gallons of it?

A. I should judge so.

Q. Now, I want to ask you about your endeavor to determine the quantity of caffein in this compound: Did you identify the caffein as such, or did you simply reach the conclusion it was caffein because of ——

A. (Interrupting) I identified it.

Q. Well, in what way?

A. In the first place, it was obtained in crystals which had the characteristic form, and in the second place it gave what we know as muric reaction; it is a reaction obtained by filtering by hydrochloride acid and potassium chloride and subjected to the fumes of ammonia whereby a very prolonged red color develops; it also had a melting point of 229; it precipitated with iodine and potassium iodine, as I described, and did not precipitate with Myer's reagent and mixture of potassium iodine and muric iodine.

Q. Did you find any theobromine in that compound?

A. No, sir.

Q. How could you tell the difference between theobromine and caffein?

A. Theobromine has a melting point of 330.

Q. That was the only distinguishing test or difference in the melting point?

A. Yes, sir.

Q. Did you apply any test at all for theobromine to that compound.

A. No, sir; none other than the melting point.

Q. How was that?

A. No other than I have described; no, sir.

Q. Now, what did you say the melting point of caffein is?

A. 229, and in some instances it melts at 236, but it is considered to melt from about 227 up to 236; the difference is due to the amount of water which exists in the crystals.

Q. Did you apply that test to this substance and thereby ascertain definitely there was no theobromine in it?

A. Yes, sir.

Q. You did?

A. Yes, sir.

Q. Did the application of that melting test definitely show there was no theobromine in the mixture?

A. Yes, I think so.

Q. You think that there could not have been a minute quantity in there that might have escaped your tests?

A. There might have been a minute trace.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. Dr. Fuller, can you account for, or explain to your satisfaction why it was that the caffein content of these three samples ranged from nine-tenths of one grain to an ounce up to one and nineteen-hundredths grains per ounce?

A. Can I account for it?

Q. Yes.

A. No, I cannot account for it.

Q. Upon the assumption that there was a uniform mixture, can you account for it? I mean to say that the contents were of like volume or of a certain proportion of syrup, a certain proportion of caffein and so on, were utilized and the same quantity of ingredients each time, then could it be accounted for, and if so in what way?

A. It could be accounted for in that they did not use the same amount of caffein.

Q. Now then, assuming they did use the same amount

of caffein, might it be accounted for in the mixing process, and if so how, and in what way?

A. They might have added more water to one than they did to the other, thereby getting a greater volume.

Q. And if they added an equal or a usual complement of water and had not separated the caffein sufficiently, would it or not vary perhaps and be in greater quantity in some portions of the mixture than others?

A. Yes, sir.

Q. With respect to the standard of method adopted by you for determining the caffein content, I will get you to state whether or not from your experience that is a substantially correct and as nearly a correct standard as you know or have heard of.

A. Do you mean the method?

Q .For the determination of the caffein content?

A. Yes, it is.

Q. Is it or not a standard method?

A. I don't know exactly what you mean by a standard method.

Q. Is there any better method to your knowledge?

A. No, sir.

Q. Now, how long have you been engaged in the matter of analyses of soft drinks to ascertain the drug components, that is, drinks of this character, what experience have you had?

A. Nearly four years. Almost ever since I have been in the bureau.

Q. Now this storeroom where you stated this filtering process was conducted, I will get you to state whether or not in there and during the filtering process it was possible for the substances that you have exhibited here to the jury on that paper, to have fallen or dropped into this mixture during the filtering?

A. There was no chance.

Q. State whether or not the exhibit that is presented you and asked that you file as exhibit No. 1, bears the appearance of being caffein, if that is caffein in the crystallized or powdered form as it usually appears?

A. Yes, this resembles caffein.

Q. I will get you to file that as exhibit No. 1 to your deposition.

Mr. Sizer: We object to the introduction of that in that form, your Honor.

The Court: You mean the label?

Mr. Sizer: Yes.

The Court: The objection is sustained.

Mr. Miller: I will take the label off, if your Honor please.

The Court: Very well.

Mr. Miller: I will ask him to file it with the label removed; it has not been seen by the jury.

The Court: Well.

BY MR. MILLER.

Q. Have you some of this caffein that was taken from the coca cola product?

A. Yes, sir.

Q. You have it with you?

A. Yes, sir.

Q. Will you produce that?

A. Yes, sir.

Q. And file it as exhibit No. 2 to your testimony?

A. Yes, sir.

Q. Now that has your seal on it; you sealed it up?

A. Yes, sir.

Q. Why is it that this is colored and why is it that it is not the same color as this exhibit No. 1?

A. This was allowed to crystallize in order to show the crystallized form that caffein will assume, and there was some dust from the outside air that got into it unfortunately.

The Court: You want to seal that up, and no one wants to open that.

Mr. Miller: Yes.

Mr. Sizer: You offer this one in evidence?

Mr. Miller: Yes.

BY MR. MILLER.

Q. Now, in its original state was this substance that was in the bottle labelled and filed as exhibit No. 2, of the same color as this powder in exhibit No. 1?

A. Yes, sir.

Q. Is this powder exhibit No. 1 the color of commercial caffein?

A. It is the color of commercial caffein.

Mr. Miller: We will have a seal put on that, your Honor.

RE-CROSS-EXAMINATION,

BY MR. SIZER:

Q. I want to ask you, Doctor, how long you have been in the business of an analytical chemist?

A. Do you mean with the bureau?

A. Yes, or in any way before you went to the bureau.

A. I was connected with Parke Davis & Company as a chemist for three years.

Q. How long have you been with the government?

A. Four years.

Q. What is your position now.

A. Assistant chemist.

Q. I want to ask you who it was that discovered this method of ascertaining the quantity of drugs in soft drinks. I believe you say that at the outset when the government first commenced these investigations, they had no method?

A. No.

Q. To ascertain that?

A. Yes.

Q. Well, who discovered that method?

A. That method has been evolved in part from experimental work which I have done and which Dr. Emory has done, and from outside sources and different methods of purification, etc.

Q. This method is one evolved by employes in the government service since these investigations commenced?

A. Yes, sir.

Q. I understand that is since you have been investigating originally some four years ago?

A. Yes, sir.

Q. State whether or not at the time this analysis of coca cola product was made, the method for determining caffein content was the one that was employed in your department and that you had evolved as you have described?

A. It was.

Q. Was there any standard or known generally accepted method that you know of for determinations of that kind?

A. No sir.

Q. That is all I will ask you, Dr. Fuller. No, I will ask you whether or not there are such substances as "coca" and "kola" known in their own distinctive names, and if you have samples of either of those?

A. I have.

Q. Are there such substances?

A. There are.

Q. Known under their distinctive names?

A. Yes, sir.

RE-CROSS-EXAMINATION,
BY MR. SIZER:

Q. Now, Doctor, what do you mean when you say there is a substance known as coca?

A. I mean there is a product on the market, a nut which grows in Africa and also in the West Indies, which is known commercially as Kola nut.

Q. Kola nut?

A. Yes, sir.

Q. And if you went to buy kola nut, what would you ask for?

A. I would either ask for kola or kola nut.

Q. Did you ever hear of a man going to buy kola nut asking for kola?

A. I don't know that I ever heard anybody buy it.

Q. Did you ever buy kola nut and ask for kola?

A. I never bought one.

Q. You don't know whether such a substance is known generally as kola, or not?

A. Yes sir, I do.

Q. Well, you never bought any?

A. That don't make any difference.

Q. And never heard of anybody else?

A. No, sir.

Q. What you call kola is the nut of the kola tree?

A. Yes, sir.

Q. And you never heard anyone call that nut kola?

A. Yes, sir.

Q. Who?

A. Chemists.

Q. What particular chemists? What chemists did you ever hear call kola nut kola?

A. I don't know as I could name any specific one now, but I have heard it very often.

Q. And the kola tree you say is found where?

A. In Africa and in the West Indies.

Q. And the kola nut is the fruit of that tree?

A. Yes, sir.

Q. And the kernel of the nut that grows on the tree?

A. Yes, sir.

Q. And, as a matter of fact, aside from chemists and people of that kind, the kola nut is not sold in this country at all?

A. Chemists and who?

Q. And people of that kind, scientific men who buy it for scientific purposes.

A. It is used by manufacturing pharmacists to make kola preparations.

Q. By manufacturing pharmacists and chemists?

A. Yes, sir.

Q. It is not an article bought and sold in the market by people generally?

A. No, sir.

Q. And the only product of the kola tree that is ever seen in this country is the kola nut?

A. Yes, sir.

Q. Now coca; what do you say coca is?

A. The leaf from a tree which grows in South America and to a considerable extent in Java.

Q. Well, don't you know that coca is the name of the tree on which that leaf grows?

A. Yes.

Q. It is the coca tree?

A. Yes.

Q. And the only product of the coca tree that is ever seen in this country is the coca leaf?

A. Yes, sir.

Q. And it is bought and sold and dealt in as the coca leaf?

A. As coca, yes.

Q. As the coca leaf?

A. Not necessarily.

Q. Did you ever buy any coca leaf?

A. I never bought any.

Q. Did you ever hear anybody buy or sell any coca leaf under the name of coca?

A. Yes, sir.

Q. Who?

A. Manufacturing pharmacists and drug brokers.

Q. Well, did you ever hear a man go into a store and ask for coca when he wanted coca leaf?

A. Yes.

Q. Who was that?

A. I don't know.

Q. If you don't know who it was, how do you know you heard it?

A. Well, I never expected the question to come up in court, and don't remember it.

Q. Don't you know it to be a fact that if a man wants any coca leaves, he will go to a drug store and call for coca leaves?

A. I don't know it. I know he would ask for coca or coca leaf.

Q. He can ask for either indiscriminately?

A. Yes.

Q. But you never heard a single man, so far as you know, go and buy it?

A. Yes, sir, I have.

Q. But you don't remember where it was?

A. No, sir.

Q. But you often heard them call for coca leaf under the name of coca?

A. I have heard them call for coca.

Q. Well, is it not a fact that if you go into the ordinary store and call for coca that they would give you chocolate?

A. No sir, they would not.

Q. Is it a fact that there is a paste made of chocolate that is generally sold and known under the name of coca?

A. No sir, called cocoa.

Q. Did you ever hear it called that by any man who sold it?

A. I don't know of any man selling it.

Q. Did you ever hear it called cocoa by any man who wanted to buy it?

A. No sir.

Q. Well, is it not a fact that 99 people out of a hundred who want to buy it, call it cocoa?

A. What is that?

Q. That paste of chocolate that is spelled cocoa, they call it cocoa?

A. They don't call it coca.

Q. Is it called cocoa?

A. It is.

Q. Well, whenever it is called cocoa ——

A. (Interrupting) I never heard it called that — you might think he was saying that, but we know what he says.

Q. You say you never heard a man call it cocoa?

A. No sir; never have.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor, what is meant by "pharmacopoea" that is referred to in this Food and Drugs Act?

A. It is a book of standards that is gotten out by the Committee; I can't give all the details of it, for I am not familiar with it, but the book is recognized as a standard under the law; that is, certain ——

Q. How is this substance that you refer to as coca referred to or named in the United States Pharmacopoea, as coca leaf or coca?

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: Well, I will bring the book in, if I have it to do.

Mr. Sizer: Yes.

The Court: The objection is sustained, on the ground that the book is the best evidence.

Mr. Miller: We will bring the book in, and will ask leave to recall the witness who is on the stand.

The Court: Very well.

BY MR. MILLER:

Q. State, Dr. Fuller, during your connection with Parke Davis & Company, manufacturing chemists and druggists, and this chemical concern in New York, and during your chemical career, you have ever known of a product sold on the market as coca leaf?

A. I have.

Q. Now is that or not that coca leaf to which you have referred generally, and which is popularly called "coca" by the trade?

A. It is.

Q. How about this kola nut that you have referred to?

A. That is kola.

Q. You say you have some of the kola and coca there?

A. I have.

Q. Will you kindly exhibit them?

A. Yes sir.

Q. I will ask you to please file those as exhibits three and four to your testimony, marking them for that purpose.

Mr. Sizer: I would like to see them if you are going to offer them in evidence.

Mr. Miller: We are going to ask him to file them as exhibits.

Mr. Sizer: Well, we wanted to know.

The Court: Let him mark the coca leaves No. 3 and the kola nuts No. 4.

Mr. Miller: And when that is done, that is all we care to ask the witness.

RE-CROSS-EXAMINATION.

BY MR. SIZER:

Q. Now, Dr. Fuller, you know of a nut that is known as the hickory nut, don't you?

A. Yes, sir.

Q. Well, if you were going to buy a bushel of hickory nuts, would you ask for a bushel of hickory?

Mr. Miller: Now I object to that question.

The Court: The objection is sustained. That is a matter of argument.

BY MR. SIZER:

Q. Did you ever sell any coca leaves and kola nuts while you were in the employ of Parke Davis & Company?

A. No.

Q. Then you don't know under what name they sold them?

A. I do.

Q. Did you ever hear any of the other salesmen sell any?

A. Yes, sir.

Q. Did you ever hear anyone come in and call for them?

A. Yes, sir.

Q. Do you know who they were?

A. No, sir.

Q. How many times did you ever hear them call for them under that name; do you know?

A. No, sir.

Q. Were any bills made out for them as "Kola" or "Coca"?

A. I could not say.

Q. And isn't it a fact when they sent out bills the man was charged with coca leaves and kola nuts?

BY MR. MILLER:

Q. Doctor, kindly put your initials on this if you will, and have it properly numbered.

A. All right, sir.

(Thereupon, at four o'clock p. m., the court adjourned until nine o'clock tomorrow morning, Tuesday, March 14, 1911.)

Chattanooga, Tennessee, Tuesday, March 14, 1911,
Nine o'clock A. M.

The Court met pursuant to adjournment.

Appearances, the same as on yesterday.

The Court: You may proceed with this case.

Thereupon, DR. H. C. FULLER resumed the stand for further

CROSS-EXAMINATION

BY MR. SIZER:

Q. Dr. Fuller, I believe you testified on yesterday that before you went into the Government service you were employed by Parke, Davis & Co.

A. Yes, sir.

Q. In what capacity, Doctor?

A. As chemist.

Q. Your duties were confined, were they, to the Chemical Department?

A. Yes, sir; practically all the time. I did some special work among the physicians, but it was in a scientific way.

Q. You had nothing to do, however, with the commercial department, the buying and selling?

A. Well, in connection with the physicians I had something to do with the selling, but it was more concerned with specialties.

Q. Now, Doctor, I want to hand you a price list of Parke, Davis & Co., and ask you whether you find coca leaves or kola nuts quoted in that price list, and if so, under what name. (Handing witness document.)

A. (After examination) I find coca leaves; yes, sir.

Q. Coca leaves?

A. Yes, sir.

Q. You do not find any coca, do you?

A. No, sir.

Q. Do you find any kola nuts?

A. (After examination) I do not find any kola at all here.

Q. You do not find any kola nuts, either, do you?

A. I do not find any kola.

The Court: Answer the question.

BY MR. SIZER:

Q. Well, do you find kola nuts?

A. No, sir.

Q. You are familiar by reputation with the firm of R. Hillier's Son Co., of 100 William street, New York?

A. I know of them.

Q. They are large importers and dealers in drugs, are they not?

A. I think so.

Q. I hand you now "Jobbers' and Manufacturers' Package Price List of R. Hillier's Son Co." and ask you whether you find coca leaves and kola nut quoted in there, and if so, under what name. (Handing witness pamphlet.)

A. (After examination) Kola nut.

Q. How is that spelled?

A. K-o-l-a.

Q. K-o-l-a. You do not find any kola?

A. I find kola; yes, sir.

Q. You mean to say that there is any kola quoted in that price list?

A. There is.

Q. Just read it, please.

A. "Kola nuts, eight and nine cents."

Q. Yes. I did not ask you about kola nuts.

The Court: The witness will please answer the question. When he is asked about kola he will answer about kola and not about kola nuts.

BY MR. SIZER:

Q. Do you find any kola quoted in that list?

A. Why, certainly I do.

Q. Just read it.

A. I read it. "Kola nuts, eight and nine cents."

Q. I did not ask you about kola nuts. I asked you if you found any kola quoted in that list.

The Court: Doctor, do not answer again about kola nuts when you are asked about kola. Answer what you are asked about and not about anything else.

BY MR. SIZER:

Q. Do you find any kola quoted on that list?

A. I cannot answer that.

Mr. Miller: The witness applies the terms indiscriminately. Mr. Sizer means kola.

The Court: He has made it clear to the witness that he is distinguishing as between kola nuts and kola, and the witness must answer about that and not about anything else.

The witness: I do not understand there is anything else.

BY MR. SIZER:

Q. I asked you the simple question whether you found anything quoted in there under the single name of kola on that list.

A. No, sir.

Q. Do you find any cocoa quoted there?

A. No, sir.

Q. Do you know of the firm of J. L. Hopkins & Co., of 100 William street, New York?

A. Yes, sir.

Q. They are large dealers in drugs?

A. Yes, sir.

Q. I hand you their price list and ask you to look it over and state if you find anything about coca leaves or kola nuts in there, and if so, under what name they are quoted, or either one of them. (Handing witness pamphlet.)

A. I find coca leaves.

Q. Coca leaves. Do you find any coca?

A. Well, I cannot answer that question, in the way it is asked.

Q. Yes, you can.

A. No, I cannot, either, because I understand coca to mean coca leaves.

Q. I did not ask you what you understood. I asked you the simple question whether you found anything quoted under the single name of coca in that list.

A. Well, to be consistent, I do.

Q. What is it?

A. Coca leaves.

Q. I did not ask you about that, Dr. Fuller, and the Judge has already instructed you to answer my question the way I put it. Do you find anything quoted under the single name "Coca" in that list? Do you find the word "Coca" quoted, the single word?

A. No, sir.

Q. Kola nuts are not quoted on that list, are they?

A. Yes, sir.

Q. Under what name?

A. Kola nuts.

Q. You do not find anything quoted under the single name of kola in that list, do you?

A. No, sir.

Mr. Sizer: Now, I desire to file these three price lists in evidence, your Honor.

The Court: That may be done. I think their exhibit numbers will be 5, 6 and 7.

(The price lists referred to are made a part of this record and are filed herewith, marked Exhibits Fuller Nos. 5, 6 and 7, respectively.)

BY MR. SIZER:

Q. I believe you stated on yesterday that this method of analysis by which you determined the quantity of caffeine in Coca-Cola was one evolved by yourself and the other employes in the office.

A. Yes, sir.

Q. You just got it up yourself and determined that it was a good method?

A. Yes, sir.

Q. I hand you the Official and Professional Methods of Analyses, published by the Government printing office, being a reprint of a bulletin issued in February, 1910, and edited by Dr. Harvey W. Wiley, and ask you if this bulletin does not provide certain methods of analyses for determining the caffeine in tea and coffee.

A. It does.

Mr. Sizer: We offer this bulletin in evidence, your Honor.

Mr. Miller: I do not admit that the bulletin is competent but I have no objection to its being offered in evidence.

Mr. Sizer: It is printed by the Government printing office, your Honor.

Mr. Miller: We are perfectly willing that it be filed as an exhibit but reserve our right to except to it for incompetency, after we have had an opportunity to inspect it. I do not know but what it may be a misprint. I have had no opportunity thus far to see this exhibit.

The Court: Let it be filed subject to such exception.

REDIRECT EXAMINATION, BY MR. MILLER.

Q. Now, Dr. Fuller, are you acquainted with what is known as the United States Pharmacopea, referred to in this Food and Drugs Act?

A. Yes, sir.

Q. Would you recognize a copy of the United States Pharmacopea if it were presented to you?

A. Yes.

Q. I will ask you to examine the treatise now presented and state whether or not that is a copy of the official United States Pharmacopea.

A. Yes, sir; this is an official copy.

Q. Can you turn in that treatise to the term "Coca" if there be such a thing in it and state how this coca or coca leaf about which you have been interrogated by adverse counsel is listed and treated and what is said on that subject with reference to the name? What is the name of the product as given there?

A. It is named coca, c-o-c-a. Following that is the description.

Q. Just give us the description of it as defined there, the definition.

A. "The dried leaves of erythroxylon coca. Lamark (Family erythroxyleae) known commercially as Huanuco Coca, or of E. Truxillense Rusby, known commercially as Truxillo Coca, yielding, when assayed by the process given below, not less than 0.5 per cent. of the ether-soluble alkaloids of Coca."

Q. Now, Doctor, are you acquainted with that drug that they are treating there as coca and spelled like it is there, and if so, what is the active constituent or principal of that drug?

A. The chief active constituent is cocaine. There are a number of other alkaloids very similar to cocaine, derivatives of cocaine, but the cocaine is the chief ingredient.

Q. State whether or not you analyzed this Coca-Cola mixture, or Coca-Cola syrup that you testified about yesterday which was shipped from this seizure, and, if you found any coca in it.

A. I did not.
Q. Did you find any cocaine in it?
A. I did not.
Q. You examined for that purpose, did you?
A. Yes, sir.
Q. Now, turn to kola, please, in the United States Pharmacopea, if there be such a product or substance treated there, and tell us under what head that is treated and how it is defined.
A. Kola is not in the Pharmacopea.
Q. Is kola nut in the Pharmacopea?
A. It is not.
Q. Neither of them? Is there such a substance or product in there as coca leaf, or anything treated under the head of coca leaf?
A. No, sir.
Q. By whom is that Pharmacopea compiled? And state if you are acquainted with any of the gentlemen that are now present who assisted in compiling that.
A. It is compiled by a committee consisting of a number of chemists and physicians.
Q. Are any of them now present?
A. Doctor Rusby is here.
Q. Anybody else?
A. And Doctor Haines.
Q. Is that Doctor Haines who is appearing here on behalf of the Coca-Cola Company?
The Court: Well—proceed to examine the witness.

BY MR. MILLER.

Q. I will ask you if Dr. Haines is present in the court room.
The Court: Unless he becomes a witness it is immaterial.
Mr. Miller: Very well. You may omit the remainder of that for the present.

BY MR. MILLER.

Q. Now, are you acquainted with—I will get you to file that Pharmacopoeia as Exhibit No. 8 to your testimony in this case. You may answer, please, "I do so."
(The book referred to is filed herewith and made a part of this record, marked Exhibit Fuller No. 8.)
Q. Now, I will ask you if you are acquainted with or know the firm of H. K. Mulford Co., Doctor.
A. Yes, sir; I do.
Q. State in what business the firm of H. K. Mulford is engaged.

A. Pharmaceutical chemists.

Q. Does that firm issue a price list?

A. Yes, sir.

Q. I will pass you the catalogue or price list of H. K. Mulford Co. and will ask you to file that as Exhibit No. 9 to your testimony, and state how coca leaf or coca, as you have used the terms indiscriminately, are listed in that catalogue, under what head. Likewise, extracts or fluid extracts, if there be any.

(The pamphlet referred to is filed herewith, marked Exhibit Fuller No. 9 and is made a part of this record.)

Under the section of "Fluid Extracts" I find coca "Coca, U. S. P. (assayed)."

Q. What does "U. S. P." mean?

A. United States Pharmacopoeia, — "(assayed)" "(Erythroxylon coca.)"

Q. Is that the same substance that you have referred to indiscriminately as coca and coca leaf?

A. Yes, sir.

Q. Of which the active principal is caffeine?

A. Yes, sir.

Q. Now, as respects kola, what do you find in that price list?

A. "Kola, N. F. (assayed), (Cola accuminata)."

Q. How does that firm stand in respect to rating, and as to whether or not it is recognized as a standard importing and selling firm throughout the United States, well-known?

A. It is.

Q. I will pass you the National Standard Dispensatory, or what purports to be a copy of it, and ask you whether or not you recognize that as a copy, and if so, please file it as Exhibit No. 10.

A. Yes, sir.

(The book referred to is filed herewith and made a part of this record, marked Exhibit Fuller No. 10.)

BY MR. MILLER.

Now, state how these substances that you have referred to as coca and kalo are there defined or treated, and under what name.

A. On page 462, "Coca," and then there is a description following.

Q. The same in substance as you have previously read?

A. Yes, sir.

Q. That definition of the coca leaf?

A. Yes, sir.

Q. Now, as to kola.

A. On page 475, "Kola,"—spelled two ways, k-o-l-a and c-o-l-a, and the description following.

Q. Is that the definition or description of the kola nut of which you have testified?

A. Yes, sir.

Q. Now, I will ask you to file as Exhibit No. 11, a sample of Parke, Davis & Co.'s preparation of fluid extract of coca and ask you if you recognize that as a standard preparation known generally on the market as coca—I mean, fluid extract of coca.

A. Yes, sir.

Q. Has it "Coca Leaf" on it, or just merely "Coca?"

A. Coca.

Q. Just pass that to the jury, if you will, Doctor, after Mr. Hirsch has seen it.—Do you know of such a firm as E. R. Squibb & Sons, of Brooklyn?

A. Yes, sir.

Q. What business is that firm engaged in?

A. Pharmaceutical chemists.

Q. On a large or small scale?

A. A large scale.

Q. I will pass you what purports to be a preparation of that firm properly labeled as "Fluidextract of Coca" and ask you if you recognize it as such.

A. Yes, sir.

Q. Is that generally bought and sold on the market in that form?

A. Yes, sir.

Q. Both that and that previous exhibit that you have filed are Parke, Davis & Co.?

A. Yes, sir.

Q. Please file that last preparation of Squibb & Sons as Exhibit 12 to your testimony and pass them to the jury, please, and let them see how they are labeled.

The Court: I am inclined to think that there is one number which has been dropped there and you had better number them in pencil and then the stenographer writing out the testimony will correct that.

BY MR. MILLER.

Q. Now, is there a reference on either of these extracts, as you say they are usually bottled,—"Coca Leaf" or merely "Coca"?

A. Please let me see that again. (Examining bottles)

Q. What does that say?

A. "Part employed—the leaves." That is on Parke-Davis'.

Q. That is under the general title of "Coca"?

A. Yes. It follows the name; that is below.

Q. The part employed is the leaves and that is what you say the cocaine is in?

A. Yes, sir. Then in Squibb's it states, "Prepared by the Squibb repercolation process, from the dried leaves of Erythroxylon Coca, or E. Truxillense (Fam. Erythroxylacae.)"

Q. Is there any other portion of the growth of this erythroxylon that you talk about that is bought and sold or known on the market as coca, except the leaf?

A. No, sir.

Q. Now, did you see the design, the pictorial design, if one there was, on the keg of this Coca-Cola syrup that was sent up to Washington and which you filtered and obtained one of those exhibits from that you produced yesterday, and if so, I will get you to state what was the design on it. In other words—

Mr. Sizer: We object to that. The label itself would be the best evidence of what was on it.

The Court: The objection is sustained.

Mr. Miller: We will have the keg brought in, your honor please.

Mr. Sizer: We should like to see that.

Mr. Miller: I will ask you, Mr. Marshal, to have the keg brought in, please, sir. Just bring it around where the witness can identify it, please.

(Thereupon the marshal produced the keg referred to and it was brought forward and placed before the Court and jury.)

BY MR. MILLER.

Q. Now, state whether or not the keg from which you drew the sample had on it the pictorial design contained on this particular keg.

A. It had a similar one.

Q. Now, then, if the coca or the kola, that product under the general names of coca and kola about which you have been interrogated, appear on that design, point it out to the jury, and just say what it is.

A. (Indicating) This is a representation of kola nuts and this of the coca leaf.

Gen. Cox: The jury cannot see that.

A. These are representations of the kola nuts and this of the coca leaf. (Pointing out on keg.)

BY MR. MILLER.

Q. Now, then, is that nut all that appears on there that you say is the product of the kola nut or growth like these

nuts that have been produced and filed here? I mean, is that a pictorial representation of this same nut?

A. Yes, sir.

Mr. Sizer: I object to that, your Honor. The nuts show for themselves. He has testified to what he understands that picture to be.

BY MR. MILLER.

Q. I will ask you whether or not that is a picture of this same nut.

A. (The witness nodds his head affirmatively.)

Mr. Sizer: I object to that, your Honor.

The Court: The objection is sustained.

Mr. Miller: It it or not —

The Court: I do that on the ground that the original nut being in court and the picture being a matter not for expert testimony but for the jury to determine for themselves.

BY MR. MILLER.

Q. Now, this coca leaf that has been filed that you say is the same thing as the kola—

Mr. Sizer: I object, may it please your Honor, to counsel quoting or undertaking to set forth in his question what the witness has testified.

Mr. Miller: Well, I will withdraw that form of question.

BY MR. MILLER.

Q. Under the title "Coca, U. S. P.," there has been filed an exhibit. What does "U. S. P." mean?

A. United States Pharmacopoeia.

Q. Is this leaf that is in the container in its original or native state or has it been dried?

A. It has been dried.

Q. What was its color before it was dried?

A. Green.

Mr. Sizer: Your Honor, there are a number of these bottles that are introduced here which have labels that were put on them by the Department of Agriculture. We submit that before the bottles are submitted to the jury those labels should be removed.

The court: They may covered over.

Mr. Sizer: Yes, sir.

BY MR. MILLER.

Q. I present you a treatise entitled: "American Homeopathic Pharmacopoeia," and ask you if you recog-

nize that as a publication of the Pharmacopoeia by the Homeopathists of America.

A. Yes sir.

Q. Under what title is this coca product of which you have filed an exhibit in the form of the leaf treated in that publication?

A. Coca.

Q. How is it spelled?

A. Coca—c-o-c-a.

Q. And what is the definition of it?

A. "Synonyms: Erythroxylon coca, Lamarck. Hayo. Ipadu."

Q. State whether or not that is in substance the same as those definitions read from the Pharmacopoeia, the United State Pharmacopoeia.

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: Those are technical terms, your Honor.

The Court: That is a matter for the jury.

Mr. Miller: We wish to file that as Exhibit 13.

The Court: It is understood as to these books that are exhibited that only such part of the book as is called attention to will be considered in evidence.

Mr. Miller: I am not sure that keg was put in evidence. If it was not, I wish to file that keg, or have it filed as Exhibit —, the keg identified here with the pictorial design referred to on it, as Exhibit to the witness' testimony.

CROSS-EXAMINATION, BY MR. SIZER.

Q. This treatise you have just filed, styled, "The American Homeopathic Pharmacopoeia," that is a list of medicines and drugs used for medical purposes, is it not?

A. Yes, sir.

Q. And the price list of H. K. Mulford & Co., or that portion of it from which you read, relates to pharmacopoeial drugs, does it not?

A. Not to crude drugs; to pharmacopoeial national? formulae — yes.

Q. It relates to drugs as prepared and used for medical purposes?

A. Yes, sir.

Q. And the national standard dispensatory also relates to medical preparations and drugs used for medicinal purposes?

A. Yes, sir.

Q. And the same is true of the Pharmacopoeia of the United States?

A. Yes, sir.

Q. Now, this bottle which you filed as Exhibit No. — marked "Fluid extract No. 150, Coca,"—"Fluid Extract" —that is a fluid extract, it is not?

A. Yes, sir.

Q. To which the name "Coca" is applied?

A. Well, it is fluid extract of coca.

Q. Well, this is a fluid extract which contains the name "Coca," and that is a fluid extract, is it not?

A. Yes, sir.

Q. That contains cocaine, does it not?

A. Yes, sir.

Q. And this also is a fluid extract containing cocaine? (Referring to Exhibit No. 12.)

A. Yes, sir.

Q. Did you ever see any green coca leaves, Doctor?

A. Yes.

Q. Where?

A. Well, they occur commercially. They dry that way, very often.

Q. In their native state?

A. Yes.

Q. Do they look anything like the leaves on the top of that keg?

They are similar; yes, sir.

Q. A great many other leaves look just like that; there are a great many other leaves that look just like that, are there not?

A. I don't know. I do not think so.

Q. What particular characteristic is there about that leaf as represented on that label that enables you to identify that as a coca leaf?

A. The shape of the leaf and the little buds there next to the leaf on the stem.

Q. Is that all?

A. Yes, sir; that is all.

Q. Did you ever see any coca leaves with little buds next to the stem like that?

A. Yes, sir.

Q. Where was that? Are they the green leaf or the dry leaf?

A. That is the dry leaf.

Q. A dry leaf. Did you ever see any green coca leaves with little buds on the stem that way?

A. You mean growing?

Q. Yes, sir.

A. No, sir.

Q. And that is the only characteristic now, the shape of that leaf, you say, and the fact that there are little buds

on the stem is the only method by which you identify those as coca leaves?

A. Yes, sir.

Q. Do you undertake to say, Doctor, that there are no other leaves that have those little buds on the stem?

A. No, sir.

Q. Do you undertake to say that there are no other leaves shaped similarly to those?

A. Well, I don't know; not with little buds on the stem, though.

Q. Now, you have just stated that you are not prepared to say that there are not other leaves with little buds on the stem?

A. I know it.

Q. And you say that you are prepared, or are you prepared to say, that there are not other leaves shaped like this?

A. There are.

Q. How do you identify the kola nut there. Did you you ever see any green kola nuts?

A. Yes, sir.

Q. Where was that?

A. I have seen them brought in. I have seen them exhibited.

Q. Do they bring them in green to this country?

A Not very often, no,—purchased them for experimental purposes.

Q. What is there about the particular substances that you call nuts on that label that enables you to identify them as kola nuts?

A. The shape and color.

Q. Are there not other nuts of that same shape and color?

A. I don't know of any.

Q. Does not that look about as much like a chocolate drop as anything else?

A. No, sir.

Q. It does not?

A. No, sir.

Q. It does not look anything like a chocolate drop?

A. No, sir.

Q. Does it look anything like a butternut?

A. No, sir.

Q. It does not look like any other kind of nut except a kola nut?

A. No, sir.

Q. You are sure of that?

A. Yes, sir.

Q. You are sure you have seen kola nuts of that precise shape?

A. Yes, sir.

Q. How large are the kola nuts?

A. The green kola nuts are very little larger than those dry ones that are on exhibit.

Q. Are they not a good deal larger than that?

A. Some of them may be.

Q. As a matter of fact, are not those dry ones simply the kernels out of the nuts?

A. Yes, sir.

Q. And the nuts themselves have a big husk on them, do they not?

A. They have an outside covering.

Q. And a number of those kernels would be contained in each nut, would they not?

A. Yes, sir.

The Court: Is this article that you call the fluid extract of coca anything that is commonly known as cocaine?

The Witness: No. Cocaine is the active principal of coca leaves.

The Court: It contains cocaine?

The Witness: Yes, sir; it contains cocaine.

BY MR. SIZER.

Q. Doctor, in the regulations adopted by the three secretaries for the enforcement of this Pure Food Law, Regulation No. 28 on page 11, under the head of "Cocaine," there is this list that purports to give a list of substances containing the different alkaloids, is it not true that in that list one substance containing cocaine is stated to be coca leaves?

Mr. Miller: Your Honor please, I object to that. I submit that is not pertinent or relevant at all. I do not conceive it to be material. I have no objection to his exhibiting it. I submit it is not relevant in the first place, and in the second place it is not relevant to this controversy.

Mr. Sizer: It is competent to show what the Government calls coca leaves.

Mr. Miller: That is not binding on the Government.

Mr. Sizer: But it would certainly have some bearing on the name.

The Court: The exception is overruled.

The Witness: Coca leaves is an infusion of coca.

BY MR. SIZER.

Q. Coca leaves are given there as one of the substances containing cocaine, is that right?

Q. Yes, sir.

Mr. Miller: I want that filed, your Honor please. It is the only copy here and if it is put before the witness I wish to see it.

Mr. Sizer: I do not want to file my copy, but we will get a copy for the gentleman if he wants it.

The Court: Well, hand it to him if he wants to examine it.

Mr. Sizer: We will give him a copy as soon as Mr. Hirsch can get it out. I do not want to give him mine because it is annotated.

BY MR. SIZER.

Q. Doctor, what did you say about not finding any of the elements of coca leaves in this coca product?

A. Do you mean in Coca-Cola?

Q. Yes.

A. No, sir.

Q. You mean now you did not find any cocaine in it, do you not?

A. I did not find any cocaine, or any chloriphel.

Q. You do not undertake to say that there are no elements in that compound derived from coca leaf?

A. Not in what is known as coca; no, sir.

Q. I did not ask you that; I asked you if you did not mean to state that there was no element in that compound derived from coca leaf.

A. I was not able to find any.

Q. Do you simply mean to say that you were not able to find it, or do you positively assert from the analysis you made as an expert that there are no elements of any compound derived from coca leaves?

A. Not as it is known as coca; no, sir.

Q. I did not ask you anything about what is known as coca, Doctor. I wish you would kindly answer the question as I ask it. Do you undertake to say as an expert from the analysis you made that there are no elements in that compound derived from the coca leaf?

A. No, sir.

Q. You mean that there are none or that you cannot say?

A. There were not any.

Q. So if it is true that there are elements in the compound from coca leaves, you failed to find them by your analysis?

A. There were not any.

Q. You say there were none?

A. No, sir.

Q. Now, Doctor, just give a list of the constituents of coca leaves.

A. Chlorophyll.

Q. That is coloring matter, is it not?

A. Yes; one of the most important constituents to find to arrive at whether there are any coca leaves present. That is one of the best evidences. Cocaine and its various derivatives.

Q. What various derivatives, now? Name them.

A. Well, ecgonine, and derivatives of cocaine, alpha and beta Truxilleuse and sometimes a small quantity of bensol—ecgonine—and of course there is plant extractive matter.

Q. What amount of plant extractive matter?

A. Undetermined.

Q. You do not know what they are? Is that what you mean?

A. Yes. They have no particular value.

Q. You do not know then what those plant extractive matters are?

A. Yes, sir.

Q. What are they?

A. Resins and tannins.

Q. In the coca leaf?

A. Yes, sir.

Q. Is that all, now?

A. Maybe a little sugar.

Q. Well, "maybe"—is there or not a little sugar.

A. I don't know.

Q. What else is there?

A. Those are the chief.

Q. I am not asking you about the chief ones. I am asking you to give all of them.

A. I believe there is a little fat.

Q. Is there a little fat or not?

A. Yes, sir.

Q. How much?

A. I don't know.

Q. What else?

A. I don't know of anything else.

Q. You do not know of anything else. They there are all the substances you know that exist in coca leaves?

A. Yes, sir.

The Court: He has stated that.

BY MR. SIZER.

Did you make a careful examination of this Coca-Cola syrup for chlorophyll, Doctor?

A. Yes, sir.

Q. By what method?

A. Why, in shaking it out to find out whether there were any alkaloidal substance present, the chlorophyll would be extracted at the same time had there been any present, and on evaporating the solvents it would have remained in the residue, and on treating that residue with water or dilute acid it would have remained insoluble and very easily collected. I made very careful examination just for that particular purpose.

Q. That is the method of examination you followed, is it, the one you stated?

A. Yes, sir.

Q. Did you make a test, Doctor, of this syrup, to ascertain whether or not any of these other elements of the coca leaves aside from cocaine and chlorophyll were in it?

A. No, sir.

Q. You did not?

A. No, sir.

Mr. Miller: I feel obliged, your Honor please, to move to exclude that portion of the witness' answer and to cross-examine which deals with the promulgation of some order by one or more secretaries at Washington, because I have had no opportunity to cross-examine as to that, and I have not been furnished with this copy as promised.

Mr. Hirsch: We will send for it.

Mr. Miller: Of course you will send for it but without the opportunity of examining it I cannot re-examine him. I would like to see the phraseology of the order that is inquired about. I will even pay you for it just for a little while, a price, if you will allow me to look at it.

Mr. Sizer: (Handing paper to adversary counsel.) You may see my copy and even read my annotations, if you please.

REDIRECT EXAMINATION, BY MR. MILLER.

Q. Now, Doctor, will you please refer to the portion of this about which you were interrogated by cross-examining counsel.

A. Regulation 28, Section F, under "Cocaine." "Cocaine, alkaloid derivatives; cocaine, hydrochloride alia and other salts; preparations containing cocaine or salts of cocaine, coca leaves; products Elixirs extracts, infusion of coca."

Q. What is meant by an infusion of coca?

A. It is the solution of coca and water.

Q. To take the leaf that you have there and soak it in water?

A. Yes, sir.

Q. All right, proceed.

A. Ointments, paste, pastilles, pills, solutions, syrups, tablets, tinctures, trokeys and wines.

Q. State whether or not coca and kola are drugs.

A. Yes, sir.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. What is the drug coca?

A. The drug coca is the dried leaf from the erythroxylon Truxxillense.

Q. That contains a number of drugs, does it not?

A. It contains a number of alkaloids.

Q. It contains cocaine, and that is a drug, is it not?

A. Yes, sir.

Q. And contains tannin?

A. Yes.

Q. Is tannin a drug?

A. Why, in some ways it is known as a drug. Tannic acid is a drug, yes.

Q. It contains ecogonine, does it?

A. Yes, sir.

Q. And ecgonine is a drug, it it?

A. It is used as a drug. Its derivatives are.

Q. It contains hygrine on that dry leaf?

A. No.

Q. It does not contain hygrine?

A. No.

Q. Does the green leaf contain hygrine?

A. It is reputed to; yes, sir.

Q. Do you know?

A. I am not familiar with the facts of that at the present time.

Q. Are there any other drugs, now, in the coca leaf that you know of?

A. It contains the other alkaloids, derivatives of ecognine, cinnamyl cocaine, and alpha and beta Truxillines, and bensol ecgonine, which I have described before.

(Witness excused.)

W. O. EMERY,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Dr., what is your age?

A. Forty-seven.
Q. Where do you reside?
A. Washington, D. C.
Q. What is your profession?
A. Chemist.
Q. What is your experience as such?
A. I am a graduate of the Worcester Polytechnic, also a student and instructor at Bonn University, Germany.
Q. Where is Bonn University located?
A. On the Rhine, near Cologne.
Q. In Germany?
A. Yes, sir.
Q. Well, what else, what other experience?
A. Subsequently five years in Germany at different periods for research.
Q. And what else?
A. About six years Professor of chemistry at Wabash College.
Q. And locateed where?
A. In Providenceville, Indiana, and nearly four years with the Bureau of Chemistry, Washington, D. C.
Q. Now, if you analyzed any of the samples which Dr. Fuller has testified in your hearing that were taken from the sealed products of the Coca-Cola syrup now under controversy in this case, I wish you would please so state.
A. I analyzed three.
Q. What did your analysis show with respect to the caffeine content?
A. The percentages were about sixteen, nineteen, and twenty-two one-hundredths percent for nos. 3966, 3967, and 3968-B interstate numbers.
Q. State whether or not these percentages were slightly in excess of those found by Dr. Fuller?
Mr. Sizer: I object to that.

BY MR. MILLER.

Q. If they were in excess, state how you account for that?
A. I used a different method.
Q. Yes.
A. And probably longer exhaustion or extraction.
Q. Now, what did your analysis show as to the caffein contents in each ounce of the mixture analyzed by serial interestate numbers?
The Court: You mean the grains per ounce?
Mr. Miller: Yes, per ounce of the Coca-Cola syrup, and you may refer to your notes, if you have them.
The Witness: I think I can state without reference.

Beginning with No. 3966, 67, and 68-B, taking them in that order, the number of grains per ounce was slightly less than one grain to the ounce; the second .10 and the third, .125 grains per ounce.

Q. Now, when that caffeine content was finally determined by you, what was done with it, or what did you do with the article?

A. The true caffeine was purified by a similar process applied by Dr. Fuller, and then examined, and characteristic tests for caffeine applied, the melting point, the solubility, and so forth.

Q. State whether or not you know the substance caffeine when you see it and come in contact with it.

A. Very certainly yes.

Q. And from your analyses, the caffeine contents which you have given, were found by you in these shipments?

A. At least those amounts, yes, sir.

Q. What is this that you say you followed a little longer or practiced a little longer than Dr. Fuller.

A. I used a different solvent and extracted a greater number of times, I believe, than Dr. Fuller.

Mr. Miller: You may cross examine him.

CROSS EXAMINATION, BY MR. SIZER.

Q. Doctor, did you pursue the came method of analysis with all these three samples?

A. Yes, sir, parallel determinations for each.

Q. Were the samples that you used obtained from the same jug or container, or were the samples that you analyzed taken from the same jugs or containers as those analyzed by Dr. Fuller.

A. Yes, sir.

Q. Did you make your analyses before or after Dr. Fuller.

A. After.

Q. Did you take the same length of time on each of those samples.

A. On each of my samples?

Q. Yes?

A. Yes, sir.

Q. You took a longer time than Dr. Fuller did?

A. I could not state as to the time Mr. Fuller employed.

Q. Do you know whether that was the bottler's syrup or the fountain syrup you were analyzing?

A. I have no idea.

Q. And you don't know whether one of them may have

been taken from the fountain syrup and one from the bottler's syrup?

A. I know nothing beyond the numbers on the jug.

Q. Now, wherein did your method of analysis differ from the method adopted by Dr. Fuller?

A. I used chloroform as an extractive agent or solvent, and I think the other method involved alcohol.

Q. Now, just state in detail your entire method of analysis in order to determine the quantity of caffeine in these samples.

A. The sample was treated a number of times with a certain quantity of chloroform, after said sample was rendered slightly ammoniacal by an addition of aqua ammonia. The solvents by this process were nitrated and evaporated, and the chloroform distilled off, and the residue obtained contained the crude caffeine and other accompanying substances, soluble in chloroform under those conditions. This residual matter was dissolved in a small quantity of dilute sulphuric acid filtrated through a wet filter paper, the filter treated with iodine solution. The iodine product forming under these conditions filtered off and washed with iodine solution. Subsequently treated with sulphite, and the aqueous acid solution containing the caffeine extracted a number of times with chloroform, the material thus extracted with chloroform being soluble, was treated with a very small quantity of animal charcoal. Aftering driving off or evaporating the chloroform, the practically colorless, chrystallized residue of caffeine was obtained which gave you a melting point of about 236. Other tests of caffeine were applied. The muric test, and subsequent treatment with ammonia, giving a purple red coloration, indicative of caffeine. Also treatment with ammonia and silver nitrate where by no silver salt was obtained, showing that no other than these xanthine products were present. That was in substance the method pursued to identify the caffeine.

Mr. Sizer: That is all I desire to ask you.

(Witness excused.)

HENRY H. RUSBY,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Mr. Rusby, kindly state your age.

A. Fifty-five.

Q. Where do you reside?

A. Newark, New Jersey.

Q. What is your profession?

A. I am Professor of Materica Medica at the New York College of Pharmacy.

Q. Where were you educated, Dr. Rusby?

A. You mean professionally?

Q. Yes.

A. The College of Physicians and Surgeons of New York and the New York Medical University.

Q. Do you sustain any connection professionally with any medical institutions, and of so, what?

A. The College of Pharmacy of Columbia University. That is not a medical school, it is a school of pharmacy, I have lectured to the medical colleges of New York for a great many years, but not now.

Q. Did you ever sustain any professional connection to Belleview Medical Hospital of New York?

A. Yes, sir, I lectured on Materica Medica there for a great many years.

Q. As Professor of Pharmacy, what are your duties, what subjects do you treat of in the lectures?

A. I lecture on the subject of drugs, their names and synonyms, their origin, history, their properties and uses as drugs.

Q. How long have you been engaged in that kind of work?

A. Since 1889, I have occupied this position, and for four years past, I have examined all the drugs that came to the Port of New York, to determine whether they are true to name and a fit quality for the making of medicine.

Q. That is, the drugs that come to the Port at New York?

A. Yes, sir, for the Department of Agriculture.

Q. Have you any connection with the New York Botanical Garden?

A. I have charge of the Economic Museum where we have all the useful products derived from the plants of the whole world.

Q. Have you any connection with the United States Pharmacopeia that is referred to in the Food and Drugs Act of the United States of June, 1906?

A. I have been a writer for that book since 1890 and am at the present time.

Q. How many members on that board?

A. At present fifty, there have been twenty-five in the past until this year.

Q. I notice on one of the official copies that was put in evidence this morning, the names of three men, among them the name of Rusby, are you that Rusby?

A. You mean in the Dispensatory?

Q. Yes.

A. That was in the Dispensatory, yes, sir.

Q. Have you had any occasion to inquire into the special names of drugs and plants from which drugs are produced for your profession, I mean your experience and professional experience, and if so, how much?

A. It has been one of my specialties in the study of botany, medical botany, to treat of names of plant products, to distinguish between the proper names and the synonyms.

Q. What do you mean when you use the words "proper name" and "synonym"? What relation do they bear to each other, doctor?

A. You are referring now to the different products—medicinal products in the United States Pharmacopeia. This committee of revision of which I have spoken has a sub-committee and the business of this sub-committee is to determine what is the proper name of the article which goes into the Pharmacopeia and that name, when it is finally decided, it goes in first as a heading, and then sometimes put under these different names as synonyms by which it is sometimes known, but in the one that is required by the Pharmacopeia as being the proper one, that stands at the top. I am a member of that sub-committee.

Q. State whether or not you are the author of any books or treatises on Materia Medica.

A. Yes, sir, I wrote Materia Medica for Buck's Reference Hand Book of the Medical Science. I also wrote the part on drugs in the National Dispensary that you speak about.

Q. Are those standard publications?

A. They are.

Q. And generally used and accepted throughout the United States?

A. Yes, sir.

Q. Have you or not written any treaties or pamphlets on the subject of coca?

A. Yes, sir, I have written a pamphlet entitled "Coca at Home and Abroad."

Q. Now, I want to ask you to state whether or not you have ever traveled or studied in the section where coca is grown, and if so, what has been your experience?

A. Yes, sir, I spent nearly a year in the country where coca was grown, and among the people who use it, for the express purpose of studying that plant.

Q. Where is this coca produced or grown?

A. It is chiefly produced in Bolivia, and Peru, some is

produced in northern Chili, and some in Ecuador, Venezuela, Brazil, and Java, but most of it in Bolivia and Peru.

Q. What do you say is used in those sections by the people, where it is produced?

A. They chew it and they say that when they chew this they do not require so much food, and say they can endure exhausting work much better than they can if they do not chew it.

Q. Now, from your experience and observations, state what is the reason for that, what is the ingredient in this coca that permits one to do more work with less food.

A. Well, I don't think that point is settled, I think it is due to several constituents.

Mr. Sizer: I object to that. The witness has not qualified yet as an analyst or analytical chemist, and I submit he is not qualified to testify as an expert as to what particular element there is in these plants that produces certain effects.

The Court: The objection is sustained unless the witness qualifies on that point.

BY MR. MILLER:

Q. State if you have studied and investigated as to the content of this coca product.

A. Yes, sir, during the entire time I was there, I made analyses of the leaves of the shrub, and bark of the root and bark of the stem, and the wood and the flowers, and have taken these in different conditions grown in the shade and sun, young leaves and old leaves, and made very careful studies as to that point.

Q. Now, what are the ingredients for which the natives chew it and get this result which you have described?

A. I think cocaine is one of these things, and I think there is something else in it which has never been described which is only found in the leaf when it is fresh or recently dried.

Q. Now, what is the chief active principle or ingredient of coca?

A. Cocaine.

Q. Is that what is properly pronounced cocaine?

A. It is the same thing.

Q. And under what name is this product, that is the leaves of this tree, or the growth or shrub that you have described as growing principally in Bolivia and Peru, I believe.

A. It is generally known as coca.

Q. It is known and so imported, bought and sold on the American market?

A. It is, I never knew any other name to be used for it in the country where it is used, and you find it sold there in every little country store, just as we sell tobacco and cigars, every grocery store has it, I never knew any other name for it but coca and that name coca was introduced into our langage from its native home, and still used as its name here.

Q. What is coca as it is generally understood, both where it is grown and in this country where it is used?

A. It is the leaf of the Erythroxylon coca, the name of the plant is Erythroxylon Truxillense, that is another one, and it must contain not less than one-half per cent. to other soluble alkaloids, of which cocaine is the principal one.

Q. Why do you mention that it must contain at least that much of that cocaine substance?

A. Because the Pharmacopeia provides that the name cocaine shall not be applied to anything that does not contain that.

Q. Is that the United States Pharmacopeia?

A. Yes, sir, the one the law is based on.

Q. Now, you have referred to the proper name and also to the synonym, now what is the synonym, if one there be, for this coca that you have talked about?

A. It is sometimes called Coca leaves, but the Pharmacopeia does not consider that is necessary because that is—

Mr. Sizer: I object to what the Pharmacopeia considers necessary.

The Witness: Then may I tell what I think?

Mr. Sizer: I object to what the witness considers about it.

The Court: The witness may express his opinion.

BY MR. MILLER:

Q. Go ahead.

A. In the case of some plants, we use both the seed and the plant, and the leaf is a drug and the seed is a drug, and in that instance have to specify the seed and the leaf, and in the name here used, nothing but the coca is used, and so the name coca stands.

Q. Is this product known by any other name than coca in the country where it is grown or produced?

A. It is sometimes pronounced coca. There are several tribes of Indians that use it, and some of these tribes call it coca and others coca, a little different pronunciation in different sections.

State whether or not you have frequently purchased this product on the American market, and if so, how it is called

for, and purchased and bought by you?

A. I have purchased it scores of times, and I never asked for anything but coca, and always receive it and the bill always stated it to be coca and never was coca leaf.

Q. Now, turn to the Pharmacopeia, and give us the proper name, and then if there be synonym given in the Pharmacopeia for this, tell what it is.

The Court: Isn't that all in?

Mr. Miller: I don't believe in respect to that it is.

The Witness: In this case, there are two names, one under the other. Here, the upper name is coca and that is considered to be the official Latin, and under that name occurs the word coca in small letters, and that is given as the English name, no synonym given in this case, that is the only name found in the Pharmacopeia.

Q. Is the only name under which it is given in the Pharmacopeia?

A. Yes, sir, the only name given.

Q. Now, examine the exhibit of what purport to be cola nuts that is here presented to you and which were put in evidence as an exhibit to Dr. Fuller's deposition, and state what the contents of that container are, what it consists of.

A. Cola.

Q. And where is that grown and from where does it come?

A. Africa and the West Indies.

Q. Examine the exhibit filed with the testimony of Dr. Fuller as coca or coca leaves, and tell us what the contents of that jar are.

A. That is coca.

Q. And is that as it is in its native state before it is cured?

A. I don't understand the question.

Q. Are the contents of that jar of the same color as appear in the native state and before it is dried?

A. No, sir, it is much greener before it is dried.

Q. What is the process of drying that that undergoes before it is imported into the United States of America?

A. The leaves are gathered together mostly by women, in bags and then these bags are brought to what is known as a coca board, which consists sometimes of cement and sometimes of clay, and the leaves are spread out on this board. Men watch them continually for fear the rain will fall on them; in that country they have frequent rains, and men watch them and sweep them into some large doors which lead into a shed. After they are dried, they are taken into this shed and left for two or three days. They undergo a sweating process there, as hay does; you dry hay

in the sun and put it in stacks and it gets a little moist from sweating, and then take it out and put it into the sun for an hour or two, and then pack it in bales.

Q. And then are they ready for shipment?

A. Yes, sir.

Q. Now, I will get you to look at the pictorial design on that keg that was filed as an exhibit to Dr. Fuller's deposition, and state whether or not you recognize the green leaf or growth surrounding that sign as representation of any leaf that you have seen in its native state and before being cured, and if so, what.

A. Yes, sir, that is the coca leaf but that is not the one that is in that bottle. There are two varieties of coca and this is the other one.

Q. I believe you say there are two different names, and two different varieties.

A. Yes, sir.

Q. State whether both are known as coca.

A. Both, yes, both are in the Pharmacopeia under that name.

Q. Now, what is the nut or representation of a nut, that appears on that keg?

A. Well, I object to the term "Nut," if you will allow me, because it is not a nut.

Q. What is it?

A. That is cola.

Q. Is that generally recognized as cola where it is bought and sold?

A. Yes, sir. That, I may say, is not the whole seed. The whole seed has on it an outer skin, which has to be taken off of it. As that is pictured on the barrel, it has the skin taken off, as you would skin a bean; take the skin off the outside of it, and what is left is the two halves, that is what you have here.

Q. Is there a synonym given in the Pharmacopeia, or is there a generally recognized synonym for cola, and if so, what is that, Doctor?

A. Cola is not in the Pharmacopeia. It was in the last edition of the Pharmacopeia preceding this one, and the name was cola. Often a synonym used for cola, cola nut, but I say it is an improper synonym, because it is not a nut. That name did not originate in the country where the plant grows, but when cola was first taken or came to England, because it looked something like a nut, the English traders gave to it the name "Nut," but it was simply ignorance in the use of the term, as it is not a nut in any sense of the word.

Q. State whether or not the names of coca and cola are

generally recognized and used as applying to the two exhibits that your attention has been called to that were filed as exhibits to the deposition of Dr. Fuller?

A. Yes, sir, those are the proper names of those two substances.

Q. Are they the generally accepted names for those products?

A. They are.

Q. State for how long, that has been so, for what number of years?

A. Each one?

Q. Well, any during the years 1908 and 1909?

A. Both of them have been known by those names you have been giving them.

Q. What is the constituent of cola?

A. Caffeine.

Q. I have here a publication by Parke, Davis & Company and ask you to refer to page 298 where the synonyms are treated of, and state if you find both the proper name and the synonym of cola there, and if so, tell what is the proper name and what the synonym is.

A. Well, here you strike on an entirely different subject, you are talking here of the name of the plant, the name of the plant and the name of the product that come from the plant. The name of the plant given is Cola Acuminata. That is because there are many species of cola, Cola Vera, etc., and they have taken this one as Cola Acuminata.

Q. Now, what is the synonym?

A. Cola nut — that gives the particular varieties they are treating of —

Mr. Sizer: I object to what it states.

BY MR. MILLER:

Q. What does Acuminata mean in that connection?

A. It refers to the fact that the leaf of the tree from which this cola is obtained is tapered gradually at the end, that is what is called Acuminate leaf. An acute leaf is one that comes to sharp point, but is gradual; is what they call the Cola Acuminata.

Q. In what business is Parke, Davis engaged?

A. Manufacturing druggists.

Q. Did you ever have any connection with the firm?

A. Yes, sir, I was their botanist for nearly ten years. I had nothing to do with the preparation of these books though. They ought to have put a different name in there.

Q. How many varieties of the Cola are there, Doctor, including this Cola Acuminata?

A. Cola Acuminata is one, only one, but Cola Vera is another species of this plant which also yields commercial cola; there are two commercial colas, and they are both of equal quality and one comes from the Acuminata and the other comes from the Cola Vera. That is the definition of the two varieties, of the two plants.

Q. In the ordinary acceptation of the term, if cocaine were eliminated from coca, would it be termed coca?

A. It would not be coca.

Q. Why would it not be coca.

A. Because the Pharmacopeia forbids the use of the term unless cocaine is contained in it.

Q. You state that you are interested in, and connected with inspecting importations in New York. Now, if coca were shipped there without cocaine in it up to this standard that the Pharmacopeia prescribes, would it or not be permitted to enter this country?

A. It would immediately be rejected, because it would not be true to name, and shipped out of the country.

Q. Are you acquainted with the substance that is usually known as caffeine?

A. Yes, sir.

Q. Which you say bears a percentage in the cola product?

A. Yes, sir.

Q. State what are the effects of caffeine, when taken into the human system, if you know, or are qualified to speak?

A. Yes, sir, I lecture on that subject. When caffeine enters into the system, is absorbed into the blood and goes to the nerve centers, especially the intellectual centers; it takes away the sense of fatigue and causes a man to do more work, at least makes a man feel like doing more work, and generally gets more activity out of his nervous system, and after that is over, his nervous system is more or less exhausted, because of the excessive stimulation that it has been subjected to. It also has some influence on the kidneys; it increases the activity of the kidney, it is a diuretic. It also stimulates the heart very powerfully, just as strychnine does, but not so powerfully as strychnine.

Q. Taking into consideration the results of the administration of caffeine, both those that are immediate and those that follow, state whether or not from your experience and observation it is a deleterious ingredient as respects the human health.

A. It is apt to be. I cannot say it is in every case, because it depends on how much of it is taken, and depends

upon the peculiarity of the individual; that very often it has bad effects.

Q. State whether or not it is a drug?

A. It is a drug.

Q. Is it or not prescribed for certain ailments?

A. It is.

Q. By the medical fraternity?

A. It is.

Q. Now, if nine-tenths of a grain, varying from nine-tenths of a grain to one and a quarter grains per ounce of the mixture composed of the ingredients that Dr. Fuller testified to found on chemical analysis of this product, were taken into the system, state whether or not the effect might be injurious to the health of the consumer.

A. You mean one single dose?

Q. One, or more than one?

A. Yes, if it was taken repeatedly, I think it might be.

Q. In the case of nervousness and in young persons as compared with robust and more matured persons, what would be the difference in effect, if any, upon the administration if this drug was given in the quantity I have suggested?

A. That the use of it on a young person, on a child, would be bad, no matter how little he took; it ought not to be allowed at all.

A. State whether or not you have had occasion to observe repeatedly users of Coca-Cola or persons who consumed Coca-Cola, as it is bought and sold in the markets of the South about the years 1908 and 1909, at any time, and if so, tell when.

A. Yes, sir, I have seen people addicted to the use of Coca-Cola as they had to go ——

Mr. Sizer: (Interrupting.) I object to that, because it is a mere matter of opinion unless he shows how people he is talking about use it.

The Court: The witness will state of his own knowledge.

The Witness: Yes, sir, I have seen people who got into the habit of using it. I remember one physician who was in the habit of using it, and he would go every chance he got around the corner to the pharmacy and get a glass of Coca-Cola.

Q. Where was this?

A. One of the suburbs of Charleston.

Q. South Carolina?

A. Yes, sir.

Q. How long were you acquainted with this physician, and how long were you associated with him?

A. I don't remember; it was during my stay there during the summer or during the spring.

Q. What were the effects of this Coca-Cola on him, both when he took it and when he didn't take it?

Mr. Sizer: I object to that, may it please your Honor, the question of apparent effects.

Mr. Miller: Well, the observable effects then.

The Court: The effects the witness saw, he may testify to.

The Witness: I saw that this man was very much like a man who was addicted to the use of alcohol and who has to and get alcohol; and when he does not go and get it — he would go down and get his Coca-Cola.

Q. Did you observe him?

A. I believe I knew of this; I noticed something wrong with the man, that he was nervous and morose, had lost his practice and was generally man, so far as a professional man was concerned; and after this I found out what caused it.

Q. State whether or not you have lived in sections where this product, of which caffeine extract was grown.

A. Which product, there are quite a lot of them?

Q. Any of them where the caffeine producing products are grown?

A. The largest amount of caffeine that is contained in any substance is contained in a substance called guarana, which is in Brazil; I have also lived among those people and seen them use it, and they use it habitually just as our people use tea and coffee; they do not have tea and coffee in that particular part. They use guarana. They take a roll of guarana and file off a certain amount of it and stir it up in water and drink it.

Q. I pass you a substance which I will ask you to file as Exhibit No. 2 to your deposition, and ask you to state if you know what that is.

A. That is guarana, the substance I have just spoken of.

Q. Please have it marked and file as exhibit No. 2.

A. All right.

Q. What is the percentage of caffeine in that product?

A. The Pharmacopeia requires that there be at least three and a half per cent. of it. It sometimes runs up to five per cent., or even a little more than five per cent.

Mr. Sizer: I object to that answer — the question asked witness was what was the quantity of caffein or percentage of caffein in that substance. He answered "the Pharmacopeia requires".

Mr. Miller: Our position is this, that the Food and

Drugs Act prescribes it based on the Pharmacopeia, and that anything there required as a drug must be so deemed, and I ask him to verify what he says on that subject.

Mr. Sizer: You did not catch my point, Mr. Miller. Mr. Miller asked him what percentage of caffeine there was in this particular black stick.

Mr. Miller: I didn't ask what percentage of this, but I asked in guarana product, he has lived among the natives that has used it.

The Court: I overrule the objection.

Mr. Sizer: We object to the statement because the Pharmacopeia here shows for itself ——

The Court: The exception is sustained on the ground that the Pharmacopeia is the best evidence.

Q. I will ask the stenographer who insists on taking out this Pharmacopeia if he will oblige me by returning it, and I will refer to the book where it is found.

Mr. Sizer: I don't object to that, and it is not necessary for the witness to refer to the book and read what is said.

Mr. Miller: I insist that your Honor has ruled that we should read such parts of it as we desire.

The Court: Yes:

BY MR. MILLER:

Q. What effect does the use of this guarana produce on the natives who consume it?

A. It produces paralysis.

Q. Paralysis of what functions or portions of the body?

A. Paralysis of the voluntary muscles, a man's hand will shake if he tries to hold it up. That comes on regularly, and is recognized by people as the effects of the habitual use of guarana in excess. I want to qualify that answer; I don't know whether the term paralysis is proper from a medical standpoint, to apply to it, but it is a case in which a man is unable to control his muscles; what we call shaking palsy.

Q. Shaking palsy?

A. Yes, sir.

The Court: I wish to caution the witnesses present in reference to testimony of witnesses, against any expression of opinion or comment by their actions.

BY MR. MILLER:

Q. Now, Doctor, will you kindly turn to and identify the page of the Pharmacopeia where this definition of guarana is given, and the provision with reference to that, and which will verify, if it will, your statement as to the caffeine contents.

A. On page 231 occurs this—Guarana, dried seed, consisting chiefly of the crushed seeds of Paullinia Dupana, yielding when assayed by the process given below not less than three and a half per cent of its alkaloidal principle.

Q. Just one more thought, Doctor. Do you know whether or not in these countries where caffeine is consumed, as you have stated, by the natives, what is the length of human life there, and whether or not it shortens life?

A. No, sir, I could not tell you.

Q. Do you know what is the average length of life there?

A. No, sir, I don't think there are any statistics in that country.

Mr. Miller: You may cross examine the witness.

CROSS EXAMINATION, BY MR. SIZER.

Q. Where did you say this guarana is used?

A. Well, I didn't say.

Q. Well, I will ask you to say.

A. It is used in the northern part of Brazil, in Venezuela, in Guinea, and in eastern Bolivia.

Q. And the plant that produces it is grown in these countries?

A. No, sir, it is native in Brazil, and from there it is sent to these other countries.

Q. And is very extensively used there?

A. Yes, sir, to about the same extent as coffee and tea are used in this country.

Q. And as a result, I suppose all the inhabitants then in those countries are paralyzed and affected with palsy.

A. No, sir.

Q. Why, you say it produces palsy?

A. Yes, sir, I said in cases, I think you will find that statement correct.

Q. You don't mean to say that the ordinary use of guarana produces palsy?

A. No, sir.

Q. But it is only when used to excess.

A. Yes, sir.

Q. And the fact is that it contains about the same proportion of caffeine as tea and coffee?

A. No, sir, it contains a good deal more.

Q. It contains a good deal more?

A. Yes, sir.

Q. Now, you know that tea and coffee are very extensively used in all civilized countries?

A. Yes, sir.

Q. And it is almost impossible to find an adult of age in a civilized country that does not use tea or coffee?

A. Oh, no sir, they used it until they found out how injurious it was, they are stopping it now.

Q. And how long has it been since they found out how injurious it was?

Mr. Miller: I submit the question put to him with reference to the use of tea and coffee, is not competent—

The Court: I overrule the exception.

BY MR. SIZER.

Q. I will ask that the question be re-read.

(The question was re-read as follows: "It is almost impossible to find an adult in a civilized country that does not use tea or coffee.")

Mr. Sizer: And I will ask that the answer be re-read.

(Answer read as follows: "Oh, no sir, they used it until they found out how injurious it was, they are stopping it now.")

(Q. And how long has it been since they found out how injurious it was.)

Mr. Sizer: Now answer that question.

A. Who?

Q. Well, you say they quit using it, since they found out how injurious it was.

A. Those who have done it, I don't say when each one found it out.

Q. Isn't it true that the use of tea and coffee throughout civilized countries has been continually on the increase?

A. No, sir.

Q. For the last three or four hundred years?

A. No, sir, it is not.

Q. Do you know what the total amount of tea and coffee consumed last year was?

A. I can't give the figures, but I know coffee dealers are complaining that people are giving up the use of coffee and that has decreased the sale of it, and the business is injured.

Q. Where did you hear that complaint?

A. From coffee dealers in New York.

Mr. Miller: To prevent renewing the exception every time, I wish to go on record here without repeating that, that we object to any interrogating of this or any subsequent witness as to the use of tea or coffee and how popular the drinks may be or their effect on humanity, for it is not under investigation in this Court.

The Court: The exception may be noted and is overruled. So far as I am informed now, I may be in error, but I believe these substances contain caffeine.

Mr. Sizer: It is conceded by everybody.

The Court: And on that assumption, the evidence is allowed.

Mr. Miller: We admit that it contains caffeine and that tea contains thein.

The Court: And tea contains thein.

Mr. Miller: Yes.

BY MR. SIZER.

Q. You say in New York.

A. Yes, sir.

Q. When was it you heard that complaint about the people quitting the use of tea and coffee?

A. Several years past.

Q. Is that tea and coffee both?

A. Coffee.

Q. Only coffee?

A. Yes, sir.

Q. Now, Doctor, isn't it a fact that last year, 1909, I should say there were eighteen million pounds of caffeine consumed in the United States alone.

A. I don't know.

Q. You don't know?

A. No, sir, I don't believe it though.

Q. You don't believe it?

A. No, sir.

Q. You would be very much surprised if you found that to be the case?

A. Indeed I should.

The Court: I don't think that the question of whether tea and coffee habits are on the increase or decrease material. The effect of tea and coffee on the human system, I think has some bearing, but whether on the increase or decrease is not material.

BY MR. SIZER.

Q. Now, with respect to the amount, the consumption of tea or coffee, coffee contains caffeine, does it?

A. Yes, sir.

Q. And tea also contains a substance called Thein practically identical with caffeine?

Q. And caffeine taken from tea, or thein, by the analytical process would be the same as caffeine taken from coffee?

A. Yes, sir, if it was purified.

Q. As a matter of fact the caffeine that is described in the Pharmacopeia and the caffeine that is sold commercially is almost universally derived from tea, is it not?

A. I don't think in all instances, but the majority of it is.

Q. Now, Doctor, is it true that the amount of caffeine in an ordinary cup of coffee is from two and a half to three grains.

A. No, sir.

Q. What is it?

A. It is, I should say from one to one and a half grains.

Q. Do you ever drink coffee, Doctor?

A. Yes, sir.

Q. Did you ever undertake to analyze a cup of coffee.

A. No, sir.

Q. Then your testimony as to the caffeine in a cup of coffee is not from any knowledge you have about it?

A. Yes, sir.

Q. How do you know how much caffeine is in a cup of coffee if you never analyzed it?

A. Because I know how much caffeine is in coffee and I know how much coffee goes into a cup of coffee, I mean the average; some like it strong and some drink it weaker, but I think the average is from one to one and a half grains.

Q. Is it a fact that the coffee as ordinarily made and served in first-class hotels and restaurants contains from two to two and a half grains of caffeine?

Mr. Miller: I think that as it is ordinarily sold at first-class hotels and restaurants, draws a distinction that is not warranted.

The Court: Yes.

Mr. Sizer: It is true, as the witness says, it is according to the places where sold, and I want to suggest at the proportion in first-class hotels and restaurants.

Mr. Miller: I think that is going too far.

BY. MR. SIZER.

Q. You say you know the quantity of coffee put in an ordinary cup to make a cup of coffee, how much is that?

A. About a dram, it averages about a dram.

Q. About how much in quantity, suppose you were measuring it out?

A. I think it is about a teaspoonful.

Q. The quantity of caffeine that would be in that teaspoonful of coffee would vary with the kind of coffee?

A. Yes, sir, very much.

Q. And isn't it true that a great many people put more

than a teaspoonful of coffee in order to make a cup?

A. Yes, sir.

Q. And so isn't it true that what the contents of a cup of coffee would be would depend on the taste of different people?

A. A good many put a great deal less than that.

Q. What is the least that you ever knew of any person to use of coffee?

A. I have seen people who only just want to get the water colored, just want to get the flavor of the coffee, and I don't think they would have more than one-eighth of a teaspoonful, or even less.

Q. How was that?

A. I say, I have known people who wanted the water colored and a little flavoring of coffee, and I don't think they would get over one-eighth of a teaspoonful.

Q. Well, that is a very rare thing to find a person that makes it that weak?

A. No, sir, it is getting to be very common among my acquaintances.

Q. You think the majority of people are getting to drink it that way?

A. No, sir, not the majority, but the minority is an increasing one.

Q. You drink it that way?

A. No, sir.

Q. Do you drink it at all?

A. I drink one cup in the morning and then I want it good and strong, I think I get about two and a half grains in mine.

Q. And you have been in the habit of drinking it that way?

A. Yes, sir; I did for nearly a year.

Q. How long ago was that?

A. I should think it was about in 1895.

Q. Now, there are many—I will change that, Doctor. I will ask you how many cups of coffee or how many glasses of this soda fountain mixture containing the coffee extract did you drink at the time you quit the use of it.

A. I took a strong cup of coffee in the morning, and then I would go to a soda fountain when I was near it two or three times a day, and get a glass of coffee soda. I suffered a great deal from headache and took this—I was very nervous and was subject to a great deal of strain—and I took this to enable me to go through with my work, and after I took a cup in the morning I would go ahead with my work.

Q. How many grains of caffeine do you think you had a day under those circumstances?

A. I should think seven or eight a day.

Q. And you kept that up for how long?

A. Well, I could not tell you. I kept it up through one term of work in college, which is about eight months.

Q. That was excessively using caffeine?

A. Yes, sir.

Q. And these deleterious results that you spoke of followed that excessive use?

A. Yes, sir.

Q. In one cup of coffee?

A. Yes, sir.

Q. You drink that every day?

A. Yes, sir, every morning.

Q. And you have been doing that for how long?

A. Well, a good many years.

Q. What is your age?

A. My age is fifty-five.

Q. And you have been drinking it ever since you have been a man?

A. Well, I can remember I began drinking coffee about thirty years ago.

Q. And you do not think now, Doctor, that the coffee that you have drank has produced any deleterious effect on you?

A. No.

Q. If it did you would stop it?

A. It hurt me so much at one time I had to stop it to save my life.

Q. How much were you used to drinking then?

A. A great deal at that time, I would go to soda fountains and take soda water with strong coffee syrup in it.

Q. Then there is a beverage of that kind that is sold extensively at soda fountains?

A. Yes, sir.

Q. A beverage that they put the coffee syrup in?

A. Yes, sir.

Q. And thereupon you moderated your use of caffeine-containing substances and came down to what you think was moderate use?

A. Only a cup for breakfast.

Q. That does not hurt you?

A. No, sir.

Q. You don't think it produces any delcterious result?

A. No, sir.

Q. Now, in addition to the tea and coffee, Doctor, chocolate contains very similar alkaloids?

A. Well, I would like you to define the term "very similar."

Q. Well, it contains some caffeine, does it not?

A. Well, I doubt it.

Q. Do you know whether it does or not?

A No.

Q. It contains also theobromine, does it not?

A. It contains theobromine.

Q. Isn't it a fact that theobromine is almost identical in its constituency with caffeine?

A. Well, I am not speaking as an expert chemist, but I think there is quite a difference.

Q. Do you know how much difference?

The Court: I think we had better limit this investigation to caffeine.

Mr. Sizer: We want to get it in.

The Witness: I know the difference physiologically; I know the different action on the system.

BY MR. SIZER.

Q. What is the diffeeence between the physiological action of caffeine and theobromine?

A. Theobromine acts on the kidneys and has a very slight effect on the nervous system.

Q. Does caffeine act on the kidneys?

A. Yes, sir, but also acts on the nervous system.

Q. Theobromine does it, too?

A A little; not much.

Q. I want to ask you now, Doctor, what was the name of that man in Charleston, that physician, you say got in such a terrible condition.

A. I don't remember his name.

Q. You don't remember his name?

A. No, sir.

Q. In what way was he associated with you?

A. I lived with him.

Q. How do you know the amount of Coca-Cola that he drank a day?

A. I don't know.

Q. You don't know?

A. No, sir.

Q. Doctor, do you know the amount of alcohol he drank in a day?

A. He didn't drink any.

Q. How do you know?

A. Because I would have seen him.

Q. You didn't see him all day long?

A. I wanted to get some whisky one night myself and

he didn't have any, and I had to get some for myself.

Q. But how do you know he had not used up all he had?

A. I knew that he didn't take any alcohol.

Q. You didn't see him take any, you mean?

A. I know he would not.

Q. Isn't it a fact that only the way you know it is you didn't see him take it?

A. No; it is not the only way.

Q. What other way do you know about it?

A. Because when I made my whisky in there—I made up a whisky sour and we talked the matter over and then he said he didn't use alcohol.

Q. He told you he didn't use it?

A. Yes, sir.

Q. And you didn't see him use it?

A. No, sir.

Q. Did he take any morphine?

A. I am very sure he did not.

Q. You did not see him do it?

A. No, sir.

Q. You do not know he did not?

A. Yes, sir, I am sure I do.

Q. How do you know it?

A. Because I know people who take morphine; I can tell it.

Q. Are you a physician?

A. No, but I have had a great deal to do with people who used morphine.

Q. Doctor, the effects you observed on him, were those in any way similar to morphine?

A. Some of them.

Q. If he had the effects from the taking of morphine, how do you know he didn't take it?

A. He said he didn't take it; I said he had some of them.

Q. If he had some of the effects that follow from the taking of morphine, how do you know he didn't take it?

A. Because he didn't have the others.

Q. What others didn't he have?

A. They are hard to describe, but he didn't have the look to his eye that a person using morphine has.

Q. What kind of a look is that?

A. I can't define it but I know it.

Q. Did he take any cocaine?

A. No, sir.

Q. How do you know?

A. Well, I am sure of it.

Q. Isn't it a fact that his condition as you have de-

scribed it here was such as might indicate to you the use of cocaine?

A. No.

Q. Wherein was it different?

A. Well, he didn't have the dilation—that a person has when they take cocaine.

Q. Is that all?

A. Yes, sir.

Q. He had all the other symptoms except that?

A. Yes, sir. I don't think that is quite giving an answer to that question, I don't think I considered it—I don't think it occurred to me—if he had been a victim of the cocaine habit after all I had seen of him it would have occurred to me.

Q. Do you know whether or not he was in the habit of taking strychnine?

A. Yes, sir, he might have been.

Q. You don't know whether he was or not?

A. The effects of that and caffeine are pretty much the same.

Q. How long did you observe him?

A. About two weeks.

Q. Just two weeks?

A. Yes, sir.

Q. How often did you say he would go out in the course of a day and get something to drink?

A. I don't know; I used to see him do it very frequently.

Q. You would not know what he got?

A. Yes, sir, I do; he used to go around the corner and always stopped at the drug store and get his Coca-Cola.

Q. About how many drinks would you think he would take in the course of a day?

A. I have known him to take five.

Q. Five.

A. Yes, sir.

Q. In the course of one day?

A. Yes, sir.

Q. In the course of one day?

A. Yes, sir.

Q. And he drank coffee in addition to that?

A. Yes, sir.

Q. And tea?

A. I don't think he took tea.

Q. Did he take chocolate?

A. No, sir.

Q. Did he smoke?

A. No, sir.

Q. Did he chew tobacco?

A. No, sir.

Q. I believe you stated that you never practiced medicine, did you not, Doctor?

A. No, I did not; I have practiced medicine.

Q. When?

A. Well, I was on the medical staff of the New York Lunatic Asylum for Women for a year.

Q. When was that?

A. That was in 1883 and 1884, I think.

Q. Have you ever had any other experience as a medical practitioner?

A. Oh, yes; when I traveled I practiced medicine.

Q. When you traveled?

A. Yes, sir.

Q. You do not practice at home, then?

A. No, sir.

Q. You only practice when you travel?

A. Well, I don't always practice when I travel, but when I travel, why, I go prepared for it, because there are no physicians in the countries which I travel through, so I practice medicine with those whom I am with. I went one time as physician to an exploring expedition, with fifteen members in the party.

Q. You just practiced, then, on the members of the expedition you may go exploring with?

A. Oh, no. I practice on a great many people who live in communities where there are no physicians and when I go there I would practice medicine.

Q. That is, on the natives of these foreign countries?

A. Well, the natives and foreigners, and on any one who happened to be there.

Q. So it is that your medical practice, aside from what you do casually on these exploring trips, has been confined to that when you were in the lunatic asylum?

A. Yes, sir.

Q. How long have you been examiner of drugs, which I believe you say you are, at the Port of New York?

A. Since, I think, July, 1907.

Q. About three years?

A. Yes, sir.

Q. Your have never dealt in the coca leaves or kola nuts, either as a seller or buyer, except for your own use, have you?

A. Yes, sir; I have bought them by tens of thousands of pounds.

Q. When was that?

A. In 1886, for Parke, Davis & Company.

Q. You bought those where?

A. In the country where they grow.

Q. You were the purchasing agent, then, for Parke, Davis & Co. during those years?

A. For that article.

Q. Now, Doctor, it is a fact, it is not, that coca is really the name of a tree?

A. No, sir; it is not.

Q. It is not so?

A. No, sir.

Q. Do you know what the name coca originally came from?

A. I have forgotten. I have known.

Q. Do you know what the meaning of it is?

A. I have known but I have forgotten.

Q. Does not the word mean "The Divine Plant"?

A. No, sir; that is not the meaning. That is not the translation of the word.

Q. Well, what is the translation of it?

A. I do not know; but it is not that.

Q. How do you know "The Divine Plant" is not the translation of it, then?

A. Well, I know that the name coca is applied to the product and it was given to the tree as the coca tree, the name.

Q. Just answer.

A. The name of the product.

Q. Just answer the question I ask you, Doctor. How do you know, if you don't know the meaning of the word "Coca," that it is not the proper translation of it? How are you able to say that "The Divine Plant" is not the proper translation of it?

A. Well, I think I will take back that statement. I do not think I do positively know.

Q. Yes. You have read the work by Mortimer, have you, on Peru and the history of coca?

A. I helped to write it.

Q. You helped to write it?

A. Yes, sir.

Q. On page 7 of this work the following language occurs:

"During the early age, when this nature's garden was unknown to the rest of the world, the Incas, who were then the dominant people of this portion of the continent, regarded this shrub as 'the divine plant,' so all important and complete in itself, that it was termed simply khoka, meaning the tree, beyond which all other designation was unnecessary. This plant, which has been described under

a variety of names but now known as Coca, has appealed alike to the archaeologist, the botanist, the historian, and traveler as well as to the physician."

Now, you helped Doctor Mortimer write that, you say?

A. Not that part.

Q. You were not responsible for that part of it?

A. No, sir.

Q. You have read the work, have you not?

A. Not all of it.

Q. Did you not read it before it was published?

A. Oh, no. I only was in consultation with Doctor Mortimer. He used to come to me very frequently and we would discuss these things.

Q. You disagree with that statement, then?

A. No, I do not say I disagree with it. I don't know anything about that.

Q. You don't know whether it is true that that tree is known by the name "Coca," or not?

A. I know that it is known as the coca tree, arbol del coca. That is the name of it.

Q. I asked you the question if you knew whether or not that tree is known and was known at the time this book was written as "Coca," meaning the tree.

A. I know it is not. I never heard that name applied to that tree in all the years that I was there. When they spoke of the tree they said arbol, which means tree, del Coca.

Q. I believe I asked you a while ago if you knew the meaning of this word Khoka.

A. No, sir.

Q. You say you do not know?

A. No, sir.

Q. Doctor, I now call your attention to a plate on page 327 of this work by Doctor Mortimer, where appears an illustration of a specimen of coca sent by Jussieu, somebody, some Frenchman. Is that a correct representation of coca?

A. Yes, sir; that is the kind that is in that jar, but it is not the kind that is on this barrel.

Q. That is a tree, is it not, the bush?

A. No, sir, that is a branch of it.

Q. That is a branch of the tree?

A. Yes, sir.

Q. So that the name "Coca" may be properly applied, then, to a branch of the tree, is that so?

A. That part below is wrong. He has given the roots there and it never looks like that at all, but the branch of it is correct.

Q. Now, he applies the name here to the roots, the leaves and the whole tree, does he not?

A. Well, I don't know what he does.

Q. The name Coca appears under that, "Coca," and that is said to be a specimen of coca, is it not?

A. Well, the leaf is there.

Q. So is the tree, is it not?

A. No, sir. The tree is not there. That is a branch that has got no business there.

Q. A branch and flower like that ——

The Court: I think that speaks for itself.

BY MR. SIZER:

Q. I want to ask, may it please your Honor, if this picture might not show just exactly what it did show.

Mr. Cox: He has stated it did not.

The Court: It shows the branch and root.

BY MR. SIZER:

Q. It shows the branch and root and the berry, too, does it not? I want to ask what is this substance that looks like berries or flowers up there among the branches. Are those flowers, or berries of the tree?

A. Those are the flowers; there is no fruit there.

Q. On page 343 of the same work is another cut. What does that represent?

A. That represents a branch of the other kind, the kind that is in that barrel.

Q. The branch of a tree, does it not?

A. Yes, sir.

Q. And it is called what?

A. Type of Bolivian coca.

Q. The term "Coca" is very often applied, now, Doctor, to cocaine, is it not?

A. I never heard so.

Q. You never heard the term "Coca" used as cocaine?

A. Never in my life; no, sir.

Q. Cocaine is one of the alkaloids found in coca leaves, is it not?

A. Yes, sir.

Q. And only one of them?

A. Only one.

Q. There are a number of other constituents in the leaf?

A. Well, I don't know about their being in the leaf, but you get them out. Whether they break down, whether they are broken down products or not I cannot say. I know there is one there present in the leaf.

Q. I want to read you another extract, now, from this publication, Doctor, on page 17:

> "The truth cannot be too forcibly impressed, that cocaine is but one constituent, and no more fully represents Coca than would prussic acid — because found in a minute quantity in the seeds of the peach — represent that luscious fruit. In emphasizing this a recent investigator who passed a long period in the Coca region, studying as a scientist the peculiarities of the plant, and watching as a physician its effect upon native users of the drug, says: 'With certain restrictions it may be said that the properties of cocaine, remarkable as they are, lie in an altogether different direction from those of Coca as it has been reported to us from South America.'"

That is true, is it not?

A. I wrote that, so it must be true.

Q. You wrote that. Well, you admit it to be true?

A. Am I allowed to explain that answer?

The Court: You may make any explanation you want.

A. Well, I want to say that that applies to the leaf in its own home, and I specifically stated elsewhere that it does not apply to the leaf after it reaches this country. It is only before it is dried or shortly after it is dried that this is true of it.

Q. Wherein does it not apply to the leaf, as brought to this country.

A. The leaf as brought to this country does not contain the principle that make those Indians use it, other than the cocaine. That is one of the things.

Q. What is that principle, and how does it get out of the leaf?

A. Simply with the passage of time. If you go to a little store where they sell coca to the Indians who chew it you will not find one bag of coca, but you will find a lot of bags around, and each one of these bags was picked at a certain length of time previously. If it has been picked for two weeks it does not bring as high a price, and if it has been picked for a month it does not bring as high a price, and when you get one where it has been picked for six or eight months they will not use it. You can hardly get rid of it, but it contains the same amount of cocaine then as at first.

Q. What is that particular substance in coca leaves that leaves them in the course of time?

A. Nobody has ever determined.

Q. I want to know if you used this language which appears on page 183: "The qualities of coca are not fully

represented by any one of its alkaloids thus far isolated."

A. I don't know. I think I might have written it because it is perfectly true, but that only applies to coca at home, in its own home. That does not apply to the coca here. I would like to call attention to the fact that I wrote a pamphlet which is entitled "Coca at Home and Abroad," and in that pamphlet I set forth these facts, and this author has copied from one part of that, the part that relates to coca at home and not that which relates to coca here.

Q. You do not pretend that coca, even as brought to this county, is represented only by the cocaine; that is, that the cocaine represents all the qualities of the coca leaf?

A. Practically all; yes, sir.

Q. You have said there are a number of other alkaloids in it.

A. Yes; but they act very much the same as cocaine.

Q. I know, but those that are alkaloids have their own effect, independent of caffeine?

A. Oh, yes, sir; there is some difference.

Q. Are there any aromatics in it?

A. Yes, sir; a little, but not enough to have any medical effect. There is just a trace of volatile oil.

Q. There are some in there that could be extracted out?

A. Yes, sir.

Q. I want to ask just one question. You say caffeine is a drug, Doctor?

A. Yes.

Q. It is much more excessively used as a food than as a drug, is it not?

A. I do not hold that caffeine is a food in any sense of the term. The substance in coffee taken with a meal, in that sense it is used as a food, but caffeine itself I do not think is a food.

Q. Caffeine, however, is taken in food products much more extensively than it is used as a drug, is it not?

A. Every time.

Q. And a great many substances may be drugs or food, according to the manner in which they are used?

A. Yes, sir.

Q. For instance, salt is a drug, is it not?

A. Salt is a drug; yes, sir.

Q. But it is much more commonly used as a food?

A. Yes, sir.

Q. And honey—

The Court: Well, that is a sufficient illustration.

BY MR. SIZER.

Q. I want to know now how many different plants, Doctor, do you know of which contain caffeine?

A. I do not think I could do any more than approximate that.

Q. Well, give all you know.

A. I should think about a dozen.

Q. I want to get the names of them, Doctor.

A. Oh, well—then we will take—do you want the botanical names?

Q. Give the plain, common, every-day names.

A. We will begin with two kinds of coffee. That is, two different species of coffee, the Arabian coffee and the Liberian coffee. Tea, — Guarana, Paraguay tea, Ilex vomitoria,—which grows right down here on this Atlantic Coast.

Q. What they call Appalachian tea, is it?

A. I never heard it called that; no, sir. I think that is Ceanothus—I would not be sure, though. I do not think it is. Then we get about five species of kola, of which two are commonly in use, but there are three others which contain it and are not in common use. That is all I think of just now.

Q. I asked you a while ago about whether commercial caffeine, or caffeine as described in the Pharmacopoeia is not made from tea leaves; what do you say about that?

A. Well, I think you asked me if it was not almost universally made from tea leaves and I said no, most of it was made from tea.

Q. Is it not a fact that caffeine is described in the Pharmacopoeia as being obtained from tea leaves?

A. That is only one of the sources. It has numerous other sources, too.

Q. That is the first one?

A. It is obtained from coffee, or from tea, or obtainable from other plants.

REDIRECT EXAMINATION, BY MR. MILLER.

Q. Doctor Rusby, turning first to this illustration which your attention was called to on cross-examination on page 237, in Mr. Mortimer's book, I will ask you whether or not you find the leaf as well as the plant shown there.

A. I find a branch which has leaves and flowers on it, and then I find down at the bottom of the page a lot of leaves themselves in different sizes, and showing two sides of the leaf, and I take it that the leaf is the thing that is referred to, and the branch—

Mr. Sizer: I object to that.

The Court: The exception is sustained.

BY MR. MILLER.

Q. Now, then, turn to page 343 and state if likewise the leaf is shown in that illustration as well.

A. The leaf is shown there also.

Q. Now, this treatise to which adverse counsel has called your attention is, I notice, dedicated to "Angelo Mariani, Paris, France, a recognized exponent of the 'Divine Plant' and the first to render Coca available to the world." State whether or not this Angelo Mariani that wrote so much about it was the man that put on the market this product known as Vin Mariani, or Wine of Mariani, which the Government confiscated for adulteration because it contained cocaine.

Mr. Sizer: I object to that, your Honor.

The Court: The exception is sustained.

BY MR. MILLER.

Q. Now, adverse counsel read from page 18 with respect to coca leaves. On page 17 I find this statement in this book:

"Because of this ignorance of certain investigators the historical accounts of the use of Coca and its sustaining qualtities among the natives, have been set down to exaggeration or absolute fabrication."

Now, do the natives use anything else that comes from that growth down there except this leaf that you talked about?

A. Absolutely nothing but that leaf, just as you see it there.

Q. Just as you see it in this jar before us?

A. Except that it is fresher.

Q. So that is the coca that they use down there?

A. The coca that is used is the leaf.

Q. Then, following, that at the bottom of page 17 and the top of page 18, is this statement:

"Then as though forgetful of all preceding investigation or condemnation, a renewed discussion commenced regarding the asserted qualities of coca, the failure to realize them and the probable source of the potency of the plant as represented by cocaine."

Now, state whether or not the cocaine that was found in the coca leaf, when it is consumed or chewed by the natives down there, gives this apparent increase of muscular and physical activity.

A. Not alone. It does not do it if you take the cocaine alone.

Q. Will cocaine do it to any extent?

A. Yes, it will do it to some extent.

Q. Now, on page 19 there is this statement:

"The theory has been advanced that because cocaine is one of the chief alkaloids of coca, it represents whatever sustaining quality the leaf can possibly have the manufacturers base their choice of leaves upon the percentage of cocaine determined by assay. But this is not in unanimity with the selection of the native users of coca,"—

A. (Interrupting) That is true.

Q. (Continuing) "any more than would be the quality of a choice tobacco leaf be governed by the amount of nicotine it contains."

A. Yes, sir. I can say about that that I have gone to one of these places where it was sold and I have taken the different coca leaves at different prices. One-half of it was so old the people would not take it. I have made assays of these and they contained the same amount of cocaine, approximately.

Q. "The fact is the Andean Indians select coca that is rich in the more volatile associate alkaloids and low in cocaine.

A. I don't know that; I think the amount of cocaine is generally just about the same.

Q. Well, then, state whether or not in conclusion it is a fact that the leaf, and the leaf only, is the only product of this plant that is bought and sold as coca.

A. It is.

Mr. Sizer: I object, may it please your Honor, to his asking that question.

The Court: The exception is sustained. The ground of sustaining the exception is that he has already testified to it.

BY MR. MILLER.

Q. Now, on cross-examination you referred to some connection you had with a lunatic asylum. What was your connection with that, Doctor? What length of time have you had connection with such inmates of the lunatic asylum and under what conditions?

A. I was there for one—

Mr. Sizer: Read that question.

(Thereupon, at the request of counsel, the stenographer read the pending question.)

A. I was there for one year and it was my particular business during that year to ascertain and enter in the proper books the causes which led to the insanity of the patients, and I devoted the whole year to that work. That

was not the only thing I did, but that was my principal duty. I was given charge of that work.

BY MR. MILLER.

Q. Were you one of the directors of the asylum or are you now a director in a lunatic asylum?

A. No, sir.

Q. Have you been at any time?

A. No, sir.

Q. As I understood you, if I understood you correctly, you stated that the effects of strychnine and caffeine on the human system were very similar.

A. Yes, sir.

Q. What are effects of strychnine on the human system?

A. Strychnine?

The Court: I don't think we need to go into that.

Mr. Miller: We must most respectfully except.

The Court: We will confine ourselves to the effect of caffeine. If strychnine is similar, that is immaterial.

BY MR. MILLER.

Q. State whether or not strychnine is generally and well recognized as a poisonous drug.

A. It is.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. I understand, Doctor, that you are in the employ now of the national Government at the Port of New York.

A. Yes, sir.

Q. And have been since how long?

A. Since 1907. I think it is 1907.

REDIRECT-EXAMINATION, BY MR. MILLER.

Q. What other duties have you? Do you give your time exclusively to that, to the governmental duties? If not, what other duties do you have?

A. No, sir; whenever there is a drug which comes to that port and the quality or identity of it is in question, it is referred to me for decision.

Q. What are your other duties at the present time?

A. Oh,—I am the dean and professor of Materia Medica in the College of Pharmacy.

Q. The College of Pharmacy of New York, I believe you said.

A. Yes, sir.

Q. Does that require the principal portion of your time?

A. Oh, yes.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. You speak of being dean of the chair of Materia Medica?

A. I did not say that; I beg your pardon. I said dean of the college and professor of Materia Medica.

Q. Now, Materia Medica is confined to the description of the drugs and their pharmaceutical section or pharmacological action?

A. No, sir. It takes up their pharmacological action and their therapeutic properties.

Q. You treat of the whole subject?

A. The whole subject, the action on the system and doses.

(Witness excused.)

E. A. RUDDIMAN,

of lawful age, was produced as a witness on behalf of the Government and having been first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Professor Ruddiman, what is your age?

A. Forty-six.

Q. Where do you reside?

A. Nashville, Tennessee.

Q. In what are you engaged at the present time?

A. My chief occupation is professor of Pharmacy in the department of Pharmacy, Vanderbilt University.

Q. How long have you been connected with Vanderbilt University at Nashville?

A. Since September, 1890; a little over twenty years.

Q. What has been your professional connection with that institution from 1890 up to the present time?

A. I have held the chair of Pharmacy and Materia Medica in the Department of Pharmacy, and part of the time the lectures on pharmacy in the Medical Department.

Q. State whether or not you are acquainted with a substance that is known as coca, and also one that is known as kola.

A. I am.

Q. What is this substance that is known as coca? Is it a food or a drug?

A. A drug.

Q. And what are its effects, when taken into the human system?

A. I don't know as I am qualified to answer that question. I have not given it particular attention.

Q. Can you give us some of the known observable, more

marked effects of the chief active ingredient of that drug?

Mr. Sizer: I object to that, your Honor. The witness says he is not qualified.

The Court: The exception is sustained.

BY MR. MILLER.

Q. State whether or not you are a chemist, Doctor.

A. I am.

Q. What experience have you had as a chemist?

A. Since about 1897 I have been chemist for the Board of Pharmacy, at the Tennessee State Board of Pharmacy, and for perhaps three or four years I have been one of the chemists in the employ of the Bureau of Chemistry.

Q. That is which Bureau of Chemistry?

A. The Department of Agriculture.

Q. Your reside at Nashville?

A. Yes, sir.

Q. Now, state what this substance coca is. You say you are acquainted with it; just describe it.

A. It is a leaf.

Q. State whether or not the leaf of this plant is generally bought and sold and referred to under the name "Coca."

A. It is.

Q. As the leaves come into this country, are they usually dried or in a green state?

A. Usually dried.

Q. Examine the exhibit shown you, filed as exhibit to Dr. Fuller's testimony.

The Court: Is there any dispute that that represents the coca leaf?

Mr. Sizer: No, we do not deny that. We take it that it is.

The Court: As that is not disputed you may omit that.

Mr. Miller: This is the only witness I expect to call on that point but I withdraw the question.

BY MR. MILLER.

Q. State whether or not this leaf is bought and sold under any other name except that of "Coca," to your knowledge.

A. No, sir.

Q. Is there any other substance or product that is bought and sold under the name "Coca," except the leaf of this plant?

A. Not that I know of. Not that is recognized by the Pharmacopeia.

Q. Now, as to kola. What is generally and ordinarily

understood by the term "Kola," when that term is used?

A. It is generally known, or at least the synonym is the kola nut, but more properly the seed.

Q. And do you know what the chief active principle of kola is?

A. Caffeine.

Q. And what is the chief active principal of coca?

A. Cocaine.

CROSS-EXAMINATION, BY MR. SIZER:

Q. Doctor, did you ever deal in coca leaves or kola nuts?

A. No, not any further than to buy them for use in the college there.

Q. And so when you speak of the names under which they are generally bought and sold commercially, you refer simply to your experience when you go and buy them for use in the college?

A. Why, I look over the price lists and in that way know how they are generally termed, in common.

Q. Don't you know, Doctor, that a great many of those price lists describe the leaves of the coca tree as coca leaves?

A. Not to my knowledge.

Q. You never saw a price list that priced coca leaves?

A. I didn't say that.

Q. Well, I am asking you now,—did you?

A. I don't remember whether I have noticed that synonym or not.

Q. Now, what particular price list do you recall? Describe the coca leaves under the name of "Coca," alone, without the use of the word "Leaves"?

A. I don't know that I could call any specific price list.

Q. What particular price list can you refer to that describes kola nuts under the name "Kola," alone, without the use of the word "Nuts"?

A. I don't know that I could name any specific list there now.

Q. How long has it been since you bought any coca leaves or kola nuts?

A. Probably two or three years.

Q. How often do you have occasion to buy them?

A. About every second year, usually.

Q. Do you recall whether, the last time you went to buy coca leaves, you called for coca or coca leaves?

A. I called for coca.

Q. How can you remember that?

A. Because I never use that term "coca leaves."

Q. Now, Doctor, it is not a fact that if a man would go into an ordinary drugstore and call for coca that they would give him the powdered paste of the chocolate bean?

A. No, sir.

Q. If not that, what is commonly called cocoa.

A. That is a different product that you refer to, sir.

Q. I know it is a different product but I ask you if it is not known and commonly called cocoa.

A. Not as a drug; no, sir.

Q. I didn't ask you that, Doctor. Is it or not known and commonly called cocoa.

A. In a drugstore?

A. Anywhere, in a grocery store or anywhere else.

A. That depends on what the customer wants.

Q. Yes. If a man wanted this powdered paste of the chocolate bean, and was going to a drugstore for it, he would call for cocoa, would he not?

A. Why (at the soda fount, if he—

Q. I am not asking you about a soda fountain. I am asking you if he were to go into a drugstore and call for it, if he would not call for cocoa?

Mr. Miller: I submit that is quite argumentative and also speculative. The witness does not know what a man would do.

The Court: The exception is overruled.

The Witness: In a drugstore, do I understand?

BY MR. SIZER:

Q. I am asking you about a grocery store, Doctor.

A. Well, grocery stores do not handle coca.

Q. A grocery store does not handle cocoa?

A. The drug, coca.

Q. I am asking you about the drug, coca. Now, I am asking you about this chocolate paste, that is I am not asking you about the drug coca, now. I am asking you about this chocolate coca fill.

A. Yes, if he wanted that.

Q. They have a chocolate substance they put up in cans and call coca?

A. It is spelled differently.

Q. I didn't ask you how it was spelled. I asked you if they did not call it coca.

A. Yes, sir.

Q. That is the way it is generally known and called for?

A. Yes, sir.

Q. That is spelled, now, cocoa, generally, or sometimes cacao.

A. Yes, sir.

Q. Cola nuts are generally spelled in the price list "kola," are they not?

A. I could not say, K or C.

Q. They are quite commonly spelled kola, are they not?

A. Yes, sir.

REDIRECT-EXAMINATION, BY MR. MILLER:

Q. Look at the spelling on this keg, Doctor, that has been introduced in evidence as an exhibit and at the word "cola" as spelled thereon, and the word "coca" as spelled thereon, and then state whether or not that is the substance that is sold in the grocery store, about which adverse counsel examined you?

A. It is not.

Q. How do you spell that substance that they sell in the grocery store?

A. Cocoa, or cacao.

Q. That is what we drink sometimes as cocoa, that is c-o-c-o-a.

A. Yes, sir.

Q. Now, when we call for coca as it is spelled on this keg, what do you get and what is generally bought and sold in the market?

Mr. Sizer: I object, your Honor. He has asked him that question on examination in chief, and it is not rebuttal.

Mr. Miller: I respectfully show to your Honor that no question of spelling arose until Mr. Sizer got into this case and began to teach us orthography.

The Court: I do not think that question is fully developed by his examination before. You may ask him the question. The exception is overruled.

(Thereupon at the court and counsel, the stenographer read the pending question.)

BY MR. MILLER:

Q. State how that is.

A. The drug.

Q. State whether or not there is a sample of that in this jar that has been previously filled as an exhibit.

A. I should judge so.

Q. State whether or not that is the drug in which you state the active principle was cocaine, or coca leaves.

A. It is coca.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. And when you say, Doctor, that substance is gen-

erally known and sold under a certain name, your only knowledge as to the manner in which it is generally known and sold, consists in the fact that you bought some of it two years ago?

A. Not only in that.

Q. And the fact that price lists you say call it coca?

A. The books in general call it coca.

Q. What books in general do you refer to that call it Coca.

A. The Pharmacopeia.

Q. What else?

A. The Dispensatories.

Q. What else?

A. The various Materia Medicas.

Q. They do not describe the manner in which drugs are bought and sold, do they? They simply give the technical name of the drug, do they not?

A. They give a description of the drug.

Q. Give the description and technical name of it is that not so?

A. Yes, sir.

Q. Then, to get facts, so far as you know, the actual buying and selling of this substance in drugstores or other places is concerned, your knowledge is confined to your personal experience with it, is it not?

A. I do not quite catch that.

Q. You never heard any other man go and buy coca leaves or cola nuts from a drug store, did you?

A. I am not testifying that as the—

Q. Do you know or ever recall it?

Mr. Miller: Please let him answer the question.

The Witness. I was going to say not calling for that as the coca leaves and cola nut.

BY MR. SIZER:

Q. Do you recall ever hearing another man than yourself go into a drug store to buy coca leaves or cola nuts?

A. Not as leaves and nuts.

Q. I did not ask you how they bought them, Doctor. Do you recall ever seeing or hearing or knowing of another man—

A. (Interrupting) —No.

Q. Buying either coca leaves or cola nuts?

A. I do not.

Q. So then your knowledge as to the actual buying and selling is confined, as I say, to your personal experience, is it not?

A. I think not. I have knowledge from other sources.

Q. Well, leaving out the books and price lists that you refer to, I am speaking now of your experience of the actual buying and selling. That is confined to your personal experience, is it not, your personal buying and selling?

A. Yes, so far as buying is concerned.

Q. And it has been two years since you have bought any?

A. No. I don't know. I may have bought some last year. I buy goods in the summer, and I don't remember whether I got my store or not.

Q. Didn't you state on your original cross examination that it has been two years since you bought any? That is coca leaves and cola nuts?

A. I think I might have done that.

Q. Do you say now that you have bought any coca leaves or cola nuts within two years?

A. I cannot state positively because I have no—

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. And if you did, why you bought them under the name of coca and cola?

A. I did.

Mr. Miller: That is all.

Mr. Sizer: I object, your Honor.

The Court: He withdraws the question.

Mr. Miller: I do not.

The Court: I understood you to withdraw it. The witness did not answer, and I sustain the exception. The witness has testified fully on that subject.

(Witness excused.)

F. P. MORGAN,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER:

Q. Dr. Morgan, how old are you?

A. Forty-three.

Q. And what is your profession, or avocation?

A. I am a physician in the employ of the Department of Agriculture at Washington.

Q. How long have you been connected with the Department?

A. Since October 15th, 1907.

Q. Are you a graduate of medicine of any school, or medical institution? If so, what?

A. I graduated from the College of Physicians and Surgeons of New York in 1893.

Q. Have you practiced any as a practicioner of medicine?

A. I practiced medicine until October 15th, 1907, in Washington, D. C., when I accepted my present position with the Department of Agriculture.

Q. In what particular practice were you engaged?

A. General practice.

Q. I did not quite catch where you said you were educated.

A. The College of Physicians and Surgeons, in New York City.

Q. Were you or not in school at Harvard University?

A. Yes, I graduated from Harvard in 1890, that is the Academic Department.

Q. What degree did you take in Harvard College?

A. B. A.

Q. Are you a licensed practicioner of medicine?

A. Yes, sir.

Q. What is the nature of your work now at the Bureau of Chemistry at Washington?

A. The examination of drug products from the standpoint of the physician and such other duties as may be assigned to me.

Q. Do you belong to any recognized medical societies, and if so, what?

A. I belong to the medical society of the District of Columbia, and the American Therapeutic Society.

Q. Now, I will get you to state whether or not you are acquainted with the substance called caffeine?

A. Yes, sir.

Q. And state whether or not you have ever conducted any experiments in animal experimentation with caffeine.

A. Yes, sir, I have conducted experiments with caffeine.

Q. State if you have ever conducted any experiments with coca-cola syrup.

A. Yes, sir, I have.

Q. As prepared by the Coca-Cola Company of Atlanta?

A. Yes, sir.

Q. Now, when did you begin to conduct these experiments?

A. 1908.

Q. And on what species of animals did you conduct them?

A. On rabbits.

Q. Where did you obtain these rabbits?

A. The rabbits were obtained in the regular course by

the Bureau of Animal Industry in 1908; and in 1909 for the Bureau of Chemistry.

Q. Where are those Beaureaus located?

A. Washington.

Q. And did you experiment on any other forms of animal life except rabbits?

A. Not upon other animals, no; experimented upon man.

Q. Did you conduct any experiments on guinea pigs or anything of that kind?

A. No, sir.

Q. Did any one assist you in conducting these experiments?

A. I had the advice of others but I did the experimenting myself. During my absence from the city at one time I was assisted by another party who fed the animals for me. That was for a short time, I believe about ten days.

Q. Who was it that assisted you, Doctor?

A. Dr. Kebler.

Q. Is that L. F. Kebler who is here present?

A. Yes, sir.

Q. Where were these experiments of yours conducted?

A. The 1908 experiments were conducted in the Bureau of Animal Industry Building adjoining the Bureau of Chemistry, and those in 1910 and 1911 were performed in the Bureau of Chemistry.

Q. Had you had any other experience in pharmacology except that which resulted from this experimentation?

A. I did some experiments in 1895 and 1896. That was to determine the physiological action of the alkaloids of a drug or substance called mescal, mescal buttons. Those experiments were upon men anl also upon lower animals.

Q. Are you connected with any Institution?

A. I have given instruction in the George Washington University at Washington in the Medical Department, the Department of Materia Medica an Therapeutics. I was not a professor but an instructor.

Q. What was the object of these experimentations on rabbits that you conducted with caffeine and Coca-Cola, Coca-Cola syrup?

A. The object was to determine the effects of these substances upon those animals, upon their welfare, and so forth; upon their health.

Q. State in a general way how these experiments were conducted on rabbits?

A. Rabbits, healthy so far as could be ascertained, were secured, and they were kept under uniform conditions, so

for as was possible, throughout the experiments, that is as regards air, and light and water and food and care. They were observed at regular intervals during the course of the experiments and before the experiments were begun they were weighed for a certain number of days until they were found to be or proven or shown to be in normal, healthy condition. They were then fed with the substances with which I experimented.

Q. Did you during that time do any feeding with what has been described here as Merchandise No. 5?

A. Yes, sir.

Q. That goes into this Coca-Cola mixture?

A. Yes, sir.

Q. Well, take up the beginning of your experimentation in 1908. I will ask you first whether or not you experimented on any rabbits by giving them water alone and without giving them either Merchandise No. 5 or Coca-Cola syrup, or caffeine in any form.

A. Yes, sir. Two rabbits were given water only, daily, for a certain number of days or length of time, in order to determine whether or not water alone, or liquid, if introduced into the stomach of a rabbit regularly day after day, would of itself produce a change in their weight and gen-condition.

Q. What quantity of water was given these rabbits?

A. One rabbit was given 40 cc, which is an ounce and a third, and the other was given 30cc each time, or one ounce.

Q. In giving the results of your experiments, from time to time instead of using the cc for cubic centimeters, kindly give us the amount of it in grains or ounces, if you have it in notes, you may refresh yourself from them.

The Court: Were they given regular food in the meantime?

The Witness: Yes, sir.

Mr. Miller: Yes, I was just going to ask him that your Honor.

BY MR. MILLER:

Q. Now, what kind of food was given to those rabbits?

A. The rabbits were fed on oats and cabbage. They had oats in their cages all the time. That is to say, it was kept constantly supplied. That is, I believe, customary. The cabbage was given to them every other day. That is in order to give them a small quantity of green food. The feeding was kept uniform during the time they were under the experiment.

Q. Those rabbits that were thus kept supplied with this

food as you have described, were given this quantity of water that you have stated—tell us whether or not they improved or were injured or affected as the result of giving the water alone.

A. These rabbits, the two rabbits, gained in weight. One of them gained 6.4 per cent of its body weight and the other gained 3 per cent. The experiment was kept up in one case from May 14th to June 11th, and the other from March 6th to May 9th, sixty-three days I believe in the last case, and about 40 or something like that, in the first case. I have not the exact figures.

Q. Did you experiment on any rabbits during the year 1908 with this Mer. No. 5?

A. Yes, sir.

The Court: It is now about twelve o'clock and we will take a fifteen-minute recess.

AFTER RECESS:

At twelve-fifteen o'clock P. M., the court met pursuant to the taking of recess.

F. P. Morgan resumed the stand for further

DIRECT EXAMINATION, BY MR. MILLER:

Q. Dr. Morgan, have you a chart in your possession that you have prepared that will show the relative gain of body weight of animals that were experimented on with water alone, receiving their normal amount of food, sunshine and air? If you have, I will ask you to file it as Exhibit One.

A. Yes, sir, I have such a chart.

Mr. Sizer: We object to it, your Honor.

The Court: (after examinging chart) The exception is overruled.

Mr. Sizer: I thought you ask him for statistics.

Mr. Miller: I asked him if he had a chart showing the comparative increase or decrease in the weights of the rabbits that were fed on water.

BY MR. MILLER:

Q. I will ask you to file that as Ex. No. 1, and then explain to the jury the chart.

A. This chart is drawn for the purpose of showing the relative gain in weight of these rabits, which were fed merely with water once a day. The black line in all of these charts alike, represents the weight of the rabbit at the beginning of the experiment, and any rise above that line indicates a gain in weight, and any line drawn below

indicates a loss of weight, and above here (indicating on chart) we have the number of days shown, and here the relative weights, so that the rapidity of the rise or fall, indicates the rapidity of the loss of weight of that particular animal.

Now, in this experiment, the water was given to two rabbits, as explained, and it will be noticed that the lines rise from this base line, indicating gain in weight of these two rabbits. One rabbit gained 115 grammes in thirty days.

Q. What percentage was that? The jury do not compute grammes. What percentage of body weight?

A. The percentage of body weight is 6.4 per cent. in this and 3 per cent. in this (indicating).

Q. That is in the lower line?

A. Yes. The experiment was continued for thirty days in one case and sixty-three days in the other, and then it was considered to be satisfactory, or conclusive, and it was discontinued at that point.

Q. I will ask you to file that chart as Ex. No. 1 to your evidence, and it will be so marked by the stenographer.

Mr. Sizer: We object, your Honor, to the introduction of those charts.

The Court: The exception will be noted and overruled.

(The chart referred to is filed herewith and made a part of this record, marked Ex. Morgan No. 1.

CROSS EXAMINATION, BY MR. SIZER:

Q. How much water were these rabbits given that were given water alone during the 1908 experiments and received the normal amount of food, air, and sunshine?

A. One of them received an ounce and third and the other an ounce.

Q. Now, coming to those that were fed this Mer. No. 5, on how many rabbits did you conduct that experiment?

A. Two rabbits.

Q. And when was that?

A. That was in 1908. I have the exact date, but I believe it was in 1908.

Q. Did those rabbits that were fed Mer. No. 5 receive the same or relatively the same amount of food, air, and sunshine, and were they treated like the rabbits that had received only the water, and under the same conditions?

A. Yes, sir. They were under exactly the same conditions and had the same treatment precisely. The rabbits were all attended to keepers whose business, so far as I know, was to look after them.

Mr. Sizer: We object, may it please your Honor, to the

testimony of the witness as to what the keepers did or did not do.

The Court: I do not understand the point of the exception as applied to the witness's answer. Just note the part of the answer that you object to.

Mr. Sizer: He answers that the rabbits were fed in a certain way by certain attendants whose duties were to look after them, I believe, some to that effect.

Gen. Cox: He states that as a fact.

Mr. Sizer: I am objecting to his statement as to what the keeper did, so far as he knew, he said.

Gen. Cox: Suppose he saw it, he knew they did it.

The Witness: To look after them only was what I meant to say.

Mr. Sizer: I object to his statement that the duties of the keeper, so far as he knew, was to look after the rabbits.

The Court: What is the ground of the objection?

Mr. Sizer: The ground of the objection is that it is incompetent for him to testify as to what the keeper did, based on mere supposition. He said "so far as he knew."

The witness: Your Honor, may I make an explanation?

The Court: I will sustain the exception, on the ground it does not appear that he knew it.

BY MR. MILLER:

Q. Just state, then, in that respect, what was the duty of these keepers, and what you did, whether or not it was done under your supervision, Dr. Morgan.

A. Yes. They were hired for the purpose of looking after these animals. They also undoubtedly had other duties to perform, but their first and principal duty was to look after these animals.

Q. Were these animals kept under your supervision?

A. Yes, sir.

Q. Did you or not have occasion daily to see these particular animals?

A. Yes, sir.

Q. Did you or not have occasion to observe whether or not they received the requisite amount of food, or air, and of sunshine that were received by the rabbits that were given this quantity of water about which you have testified?

A. Yes, sir.

Q. I will ask you whether or not, those conditions with respect to air, food and sunshine, were substantially the same?

A. Yes, sir.

Q. On how many rabbits did you say, or did you say,

was this experiment with Mer. No. 5 conducted?

A. Two rabbits.

Q. How much were these rabbits given of Mer. No. 5?

A. One ounce daily.

Q. And how long were those experiments conducted on those two rabbits with Mer. No. 5?

A. They were conducted for sixty-nine days, when the experiment was discontinued.

Q. What was the result as respects increase or decrease of body weight during that period of time?

A. There was a decrease of body weight; a slight decrease.

Q. Of what percentage?

A. 5.9 per cent. on an average between the two rabbits.

Q. Have you or not a chart showing the normal body weight and also showing the decrease of body weight on these particular rabbits, and, if so, you have, I will ask you to file it as Ex. No. 2 to your testimony, and exhibit it to the jury.

A. Yes, sir; I have such a chart.

Q. Just please produce it and let the stenographer mark it No. 2 and show it to the jury.

The Court: I do not see how that will add anything as to the increase or decrease in the body weight. I will sustain the exception. If I thought it added anything or made it any clearer I would admit them, but I do not see that it does. The fact that we get the primal fact that they did gain or lose body weight is sufficient.

Mr. Miller. These charts are made from notes, and are a summary of notes which would require very much more time, perhaps, if the witness were required to refer to the notes instead of the charts.

The Court: He can state the results, whether there was a gain or decrease in body weight, and the percentage during that time, and that is the only essential fact.

Mr. Miller: We respectfully except to the ruling.

The Court: It may be noted

BY MR. MILLER:

Q. Did you conduct any experiments with Merchandise No. 5, plus one grain of caffeine, daily?

A. Yes, sir.

Q. With rabbits during the year 1908?

A. Yes, sir.

Q. By the way, I should have asked you what quantity of this Merchandise No. 5 is given to these rabbits in 1908. First, Merchandise No. 5 alone.

A. One ounce daily. When I say "daily" in 1908, I

mean daily excluding Sundays and holidays, official days. When I say daily hereafter in relation to the other experiments of 1910 and 1911, I refer to holidays and Sundays, inclusive.

Q. If I understand you, in 1908, as to all animals experimented on during that time that excluded holidays and Sundays.

A. That is to say, when I say daily I do not mean Sundays and holidays.

Q. How many rabbits were experimented on with the Merchandise No. 5 plus one ounce of caffeine during the year 1908? I mean, one grain.

A. Three rabbits.

Q. For what number of days was that experiment conducted?

A. In the case of one rabbit it was continued for 114 days, when the experiment was discontinued. In the case of another rabbit the rabbit died at the end of 19 days, and in the case of the third rabbit the death came at the end of sixty days, making an average of 64.3 days that the rabbits lived.

Q. State whether or not there was an increase or decrease in body weight during that time, as compared with the rabbit in its normal condition.

A. There was a decrease in body weight. The weight declined.

Q. Were those rabbits weighed at the outset, when they began to experiment on them?

A. Yes, sir.

Q. State whether or not those rabbits were kept under your supervision, and received the usual amount of food, air and sunshine that was given to the other rabbits that you have testified about.

A. Yes, sir.

Q. I will get you to state whether or not any autopsy was held on these rabbits that were given the Merchandise No. 5 with one grain of caffeine per ounce daily, and if so, who conducted the autopsies.

A. The autopsies were performed in each case, the autopsies in two of the cases being conducted by members of the Bureau of Animal Industry; one by Dr. Formad of the Bureau of Animal Industry, and the other by Dr. Eichorn of the Bureau of Animal Industry, and the other by a member of the Bureau of Animal Industry whose name I find I did not put down in my book.

Q. Did you or not observe the autopsies as they were conducted?

A. Yes, sir; I was present and took notes at the time.

Q. Have you those notes here with you?

A. Yes, sir.

Q. Tell us what the autopsies showed, with respect to the intestinal tract of the intestines, the interior of the rabbits, in a general way.

A. All three of the rabbits showed inflammation of the stomach or intestines, or both. That is to say, the alimentary tracts showed lesions in case of all three rabbits.

Q. Had these rabbits been given any other substance except this Merchandise No. 5 plus the one grain of caffeine daily, barring their normal food?

A. No, sir.

Q. Did you, during the year 1908, conduct any experiments with the Coca-Cola syrup?

A. Yes, sir.

Q. On rabbits?

A. Yes, sir.

Q. How much of the Coca-Cola syrup was given to the rabbits and over what period?

A. Two-thirds of an ounce was given them, one-third of an ounce of water as a diluent daily to two rabbits.

Q. And what was the result as respects the body weight?

A. The body weight of these rabbits declined.

Q. To what extent?

A. Upon the average, 19.7. The loss of weight was 19.7 per cent.

Q. Were these rabbits kept under like conditions as those you have previously referred to?

A. Yes, sir.

Q. Now state whether or not any autopsy was performed on those rabbits.

A. Yes, sir, an autopsy was performed on both of them, at the Bureau of Animal Industry.

Q. Did those rabbits live or die naturally, a natural death?

A. One of them lived and the other died. The experiment in the case of one of them was discontinued at the end of six months.

Q. State whether or not any autopsy was held or conducted on those rabbits.

A. Yes, sir.

Q. Tell us briefly what an autopsy is, Doctor.

A. A post mortem examination to determine, as far as is possible, the departures from the normal, after death.

Q. That is the changes from the normal condition?

A. Yes, sir; the changes which have taken place.

Q. I will get you to state if you were present at the au-

topsies that were held on those rabbits that were fed on the two-thirds of an ounce, with one-third of an ounce of water, two-thirds of an ounce of Coca-Cola syrup, and one ounce of water daily in 1908.

A. Yes, sir.

Q. State what the autopsy revealed as to the stomachs of those rabbits.

A. It showed signs of thickening and chronic inflammation, in one; and sub-acute inflammation in the other.

Q. What do you mean by sub-acute inflammation?

A. An acute inflammation is one which is sharp and of short duration, and sub-acute is one which is more prolonged; one that is still further prolonged would be called chronic.

Q. You say the stomach was much thickened in one of them?

A. Yes, sir.

Q. You mean as compared with the stomach of a normal rabbit?

A. Yes, sir.

Q. What if anything did that indicate as to the effect of the Coca-Cola syrup?

A. I was unable to draw any definite conclusions in that regard.

Q. Now, did you feed any other rabbits during the year 1908 with Coca-Cola, and, if so, what quantity of the syrup did you give them?

A. I fed four rabbits in 1908 with Coca-Cola syrup, using an ounce of the syrup and one-third of an ounce of water as a diluent. This was given to four rabbits daily, as I have before explained, and the loss of weight was, on the average, 363.7 grams or 21.4 per cent. of the body weight.

Q. Was there or not in case of these feedings of the Coca-Cola syrup, a decline in body weight?

A. Yes, sir.

Q. Of all the animals fed?

A. There was; yes, sir.

Q. Were there any autopsies held on this last number of rabbits, four rabbits that you have referred to?

A. Yes, sir; autopsies performed in the case of each one.

Q. And were you present at those autopsies?

A. Yes, sir.

Q. Who performed the autopsies there?

A. The autopsy was performed in the case of one rabbit, by Doctor Eichorn, of the Bureau of Animal Industry, and in the next case by a member of the Bureau of Animal

Industry whose name I did not write down at the time, and, third, by Dr. Washburn of the Bureau of Animal Industry, and the fourth by myself.

Q. Who performed that autopsy on the rabbits you previously testified about—those two?

A. In the case of the two rabbits both autopsies were performed by members of the Bureau of Animal Industry, and one of them was Dr. Formad. The other I did not note down at the time.

Q. Did those last four rabbits die or were they killed at the expiration of a certain time?

A. They all died.

Q. How long did they live, Doctor?

A. One of them lived seventy-five days; one lived eighteen days; another eight days, and another 38 days.

Gen. Cox: Read those numbers again to me.

The Witness: 75, 18, 8 and 38.

BY MR. MILLER.

Q. When did your next animal experimentation com-

A. In 1910.

mence, that is, in what year?

Q. What month?

A. The feeding began—that is to say, the feeding with the Coca-Cola began on June 13. I would not say they all began June 13. I can tell from my records the time I began. I began June 13 to feed the rabbits.

Q. How many rabbits did you feed, commencing June 13, and what did you feed them?

A. I had three sets of rabbits, which I fed, in 1910; to one set, a third of an ounce of Coca-Cola syrup. A third of an ounce of water was given to them daily. I had the second set in which I gave two-thirds of an ounce of Coca-Cola syrup, and the same quantity of water. The third set I gave one ounce of Coca-Cola syrup and the same quantity of water daily, making three sets.

Q. Now, what was the result as respects body weight of those rabbits, increase or decrease?

A. There was, generally speaking, decrease in weight. I would like to take time, separately. There are three separate groups—so as not to speak of results as the same. They are different.

Q. Just tell us about that, then.

A. Taking up first the 10 cc. rabbits, that it to say, the rabbits which received one-third of an ounce of Coca-Cola syrup daily with a third of an ounce of water,—and there were seven of these rabbits which were subjected to the experiment. They lived a varying length of time, the ex-

periment being discontinued in the case of the three of them. Four of them died.

Q. How long did those four live, that died naturally?

A. The ones that died naturally lived 33 days, 49 days, 97 days and 61 days, respectively.

Q. And the others you killed at the expiration of what time?

A. In one case 149 days; 118 days, and 122 days.

Q. Were autopsies held on those rabbits?

A. Autopsies were held on five of them. Two of them were sent away alive, five rabbits were subjected to examination by members of the Bureau of Animal Industry.

Q. And what condition did you find as respects the normal interior of these rabbits?

A. In all of the five rabbits there was inflammation or congestion of the stomach or intestines, or both. In the alimentary tracts were lesions in all cases.

Q. Had those rabbits been fed on anything or received anything during that feeding that would have produced these changed conditions that you speak of, except the Coca-Cola syrup, so far as you know?

A. No, sir.

Q. Now, take the next set of rabbits on which you experimented; how many of them were there?

A. May I tell the average lost weight of those rabbits?

Q. Yes, we would like to know that. I understand that you said there was lost weight in all these rabbits.

A. Yes, there was, loss of weight. The loss of weight averaged 31.8 per cent., body weight.

The Court: That is for the first group you spoke of?

The Witness: Yes, sir; that is the group in which they received one-third of an ounce, the smallest quantity of the three. In the next group, in which a larger amount of the syrup was given, twice as much—that is to say, two-thirds of an ounce,—

Mr. Miller: (Interrupting) Which commenced when?

The Witness: They began at different times, but in the middle of the summer of 1910. There were six rabbits used. Those rabbits were kept under the same conditions as the ones we have previously described, and the length of life varied in case of the rabbits. They all died, living different lengths of time. They all lost weight, I might say, and the loss of weight in the case of these rabbits was 28.1 per cent. of the bodyweight, at the commencement of the experiment, upon the average. The average lost weight was 28.1 per cent. of the body weight.

Q. And these rabbits were kept under the same conditions as those you have previously described?

A. Yes, sir; they were kept under the same conditions, exactly.

Q When was the next feeding commenced?

A. The third set of rabbits was also commenced, the third experiment, in the middle of the summer of 1910; these rabbits were fed as before, and the result of experiment was a loss of weight.

Q. How much or what were they given in addition to the normal food?

A. They were given an ounce of Coca-Cola syrup with one-third of an ounce of water as a diluent daily.

Q. And how long did they live after you commenced the experiment?

A. Averaged twenty-four days.

Q. Did they die naturally or not?

A. I would not be able to express an opinion on that subject.

Q. Well, what I mean to say is did they die or did you kill them?

A. No, they died naturally.

Q. And they lived on an average of how many days?

A. Twenty-four days.

Q. What was the relative loss of weight on these—I don't mean relative, but what was the percentage of loss of weight of these rabbits?

A. 20.4 per cent., from the beginning of the experiment.

Q. Were there autopsies held on these rabbits?

A. Yes, sir; autopsies were held on all of them.

Q. When was the next experiment commenced and the next set of rabbits experienced upon?

A. The next set of experiments were commenced in the early part of January, 1911, January the 3rd.

Q. How many rabbits were utilized then?

A. Seven.

Q. And what were they given in addition to the normal quantity of food.

A. They were given two-thirds of an ounce of Coca-Cola syrup with one-third of water as a diluent daily.

Q. Were they slaughtered or did they die?

A. Two of the rabbits died, and the remaining five were killed on March 6.

Q. How long did these two that died, how long had these two been living after the experiment commenced?

A. One 23 and the other 25 days.

Q. And those that were killed had been experimented on how long?

A. Thirty-five days for one, 57 for the second, 60 days

for the third, and 60 days for the fourth, and 60 days for the fifth.

Q. Were you present at the autopsy held on these rabbits?

A. No, sir. The rabbits were sent to the Bureau of Animal Industry for autopsy.

Q. By whom were these autopsies performed, if you know?

A. I believe it was performed by Dr. Formad.

Q. Now, what was the amount of loss of body weight on these rabbits, Doctor?

A. These rabbits lost upon an average of 364.2 grams, that was the loss; one of these rabbits gained in weight 135 grams. One gained 135 grams and the others lost 364.2 grams on an average.

Q. Upon the average what was the loss of body weight?

A. 22.28 per cent.

Q. When was the next set of experiments commenced?

The Court: I suggest without asking the witness detailed questions you ask him to describe it; he knows what you want to get at.

The Witness: In the set of experiments three rabbits were employed, they were given each day two-thirds of an ounce of the 1 per cent. solution of caffeine in water with one-third of an ounce of water, making an ounce of both. One of the rabbits lived 29 days after it was begun; another rabbit 41 days, and the third one lived 59 days, and the experiment was discontinued; I believe that was March the 6th when I had to stop. The loss of body weight of these rabbits was upon an average 26.2 per cent. of body weight.

BY MR. MILLER:

Q. Were you present at any of the autopsies on these rabbits?

A. No, sir.

Q. Who conducted them?

A. They were conducted at the Bureau of Animal Industry by, I believe, Dr. Formad.

Mr. Sizer: Now, I object to the testimony of the witness, as to what he believes.

The Court: Yes, the objection is sustained.

BY MR. MILLER:

Q. What was done with those rabbits, did they die or were they killed?

A. They were sent over to the Bureau of Animal Industry for autopsy.

Q. Now, state whether or not there was any means of determining which were sent over for autopsy and who held the autopsy, and if so, tell what that was.

A. I have a report on most of the autopsies myself and I believe that Doctor Formad has prepared and furnished reports ——

Mr. Sizer (interrupting): I object to his testifying to what he believes.

The Court: Yes. The question is, what means of identifying these same rabbits as the rabbits on which the autopsies were performed.

The Witness: The rabbits first are identified by numbers. In the experiments of 1908 they were identified merely by the color of the rabbit, and if the rabbit did not have enough color, a little color was put on the back to show, whereas so many rabbits were used in experiments in 1910 and '11 that a tag is put in the ear with a number upon it, and that tag remains until after the autopsy or until after the experiment was completed. The identification is through that number and the autopsy corresponds to that number.

Q. How did you attach the tag to the ear of the rabbit? Did you do that when you commenced to feed him?

A. The tag is one of these little tags you see on stockings when you buy them; they have a little square piece of pasteboard with two pins, you might say, which were simply put through the lobe of the ear.

Q. State whether or not these tags remained on the rabbits while you were conducting these experiments and until they were sent over to the Bureau of Animal Industry for autopsy.

A. Yes, sir.

Q. Now, will you please refer to and give us the numbers of the rabbits which were sent over on which autopsies were purported to have been performed by Doctors Formad and Eichorn; I asked you this because we are wanting to identify them.

A. I have summarized it; the water rabbits, there were none, and in the case of Merchandise No. 5, none; Merchandise No. 5 plus caffeine rabbits, Doctor Formad had Rabbit No. 11 and Doctor Eichorn had No. 13. Of the Coca-Cola 20 cubic centimeter rabbits, Dr. Formad had No. 9. In the case of the 30 cubic centimeter Coca-Cola rabbits, the next set, that is 1908, Dr. Eichorn had Rabbit No. 6. I believe you only asked about Dr. Formad and Dr. Eichorn.

Q. Yes. The men who are present.

A. Doctor Formad had the autopsies in case ——

Mr. Sizer: I want to renew my objection to the testimony of the witness; he is simply testifying from the same paper that he had in his hand there, and he has stated already that he was not present at the autopsies, and he merely believes they were performed by certain persons.

The Court: He has stated that at several he was present and several he was not. Your answer should be limited to those you were present at and know of of your own knowledge.

Gen. Cox: I insist he has stated that this particular number of rabbits were sent to these men.

The Court: He has stated he didn't know who they were all sent to, and he has stated that he did not see all the autopsies himself.

BY MR. MILLER:

Q. Just mention those numbers that you have already given, as I understand — you could not tell who were present, as I understand, at the autopsies in three instances given.

A. One autopsy that was performed in 1908.

Q. You were present at that?

A. Yes, sir.

The Court: This witness may just file a list for the subject of investigation of the rabbits in these different experiments with the numbers given them before they were sent to the Bureau of Animal Industry. He may file that list so counsel may see it.

Mr. Miller: I did not quite catch your Honor's ruling.

The Court: I say, he may make up a memorandum list of the different animals involved in these experiments with the numbers that were given to them that were sent to the Department of Animal Industry.

BY MR. MILLER:

Q. Then I will ask you to make a list; you need not do it now, but to make such a list and file the same as Exhibit No. 1 to your testimony, a list of the rabbits on which autopsies were supposed to have been held and when you were not present; that is, for 1908, showing the number of the rabbit and identifying him in that way, and likewise the man to whom he was sent for the purpose of making this autopsy. Will you do that and file it as Exhibit No. 1?

A. Yes, sir.

Q. Now, tell whether or not you personally sent them to Dr. Eichorn and Dr. Formad.

A. Yes, sir.

Q. What was the course or the routine by which these

rabbits on which autopsies were supposed to have been conducted in 1910 and 1911, actually forwarded from your department to the Bureau of Animal Industry, for the purpose of autopsy?

A. They were sent by the messenger to the Bureau of Animal Industry of the Department of Agriculture where the autopsy was to be performed.

Q. How far is your department or building in which you conduct these experiments, from the Bureau of Animal Industry?

A. It is diagonally across the street from it.

Q. And the street is about how wide?

A. About sixty feet.

The Court: That is not material; across the street will do.

BY MR. MILLER:

Q. Now, they were sent by a Government messenger?

A. Yes, sir.

Q. How did the reports as to the results of these autopsies come back into your possession or into your department?

A. The reports were also reported by messengers and the number upon the rabbits correspond with the number upon the reports which were sent us.

Q. Were the numbers which were given to the rabbits during the time of each experimentation in the ear attached, as it was attached at the time it was despatched from your department over to that of the Bureau of Animal Industry?

A. Yes, sir.

Q. Now, tell us whether or not this matter of animal experimentation affords an insight as to the effect of drugs on the human system and whether or not it is generally resorted to for the purpose of ascertaining the effect of drugs on humanity.

Mr. Sizer: I object to that question, your Honor; it is clearly a matter of opinion or inference.

The Court: You may answer as to whether it is generally resorted to for that purpose.

BY MR. MILLER:

Q. I will limit my question to that — is or not animal experimentation generally resorted to for the purpose of determining the effect of drugs on the human system?

A. Yes, sir; in many cases it is the only way in which such effect can be determined.

Q. State whether or not this water and the Merchan-

dise No. 5 and the Coca-Cola syrup and the caffeine were all fed to the rabbits in substantially the same manner.

A. Yes, sir; they were.

Mr. Miller: That is all.

CROSS-EXAMINATION,

BY MR. SIZER:

Q. Doctor, did you ever perform the experiment of feeding beefsteak to a cow over a series of days to ascertain what effect it would have on her inside condition?

A. No, sir.

Q. It would be very likely to have some effect?

A. Yes, sir.

Q. Not suited for that kind of food?

A. No, sir.

Q. Not the food that you would feed a cow?

A. No, sir.

Q. The same would be true, too, if you undertook to feed hay, for instance, to a tiger?

A. It might be; I don't know.

Q. It probably would result deleteriously?

A. Very likely.

Q. It would result in inflammation of the intestinal tract, would it not?

A. Yes, sir, and very acute symptoms which were not present but absent in these rabbits.

Q. Now, Doctor, rabbits do not ordinarily drink coffee or tea, do they, or other beverages?

A. No, sir.

Q. Or eat chocolate?

A. No, sir.

Q. They do not partake ordinarily of anything that contains caffeine, do they?

A. No, sir.

Q. On the contrary, the human race for several hundred years past has been in the habit of using coffee and tea and caffeine-containing drinks?

The Court: I think the jury will take notice of that — the jury know that fact.

BY MR. SIZER:

Q. What was the weight of these rabbits?

A. What was the weight?

Q. Yes, about the average weight?

A. Why, roughly speaking, without looking at my notes, I should say they weighed between somewhere around 1200 up to 2300 or 2400 grams.

Q. What is that in pounds, please?
A. Well, on an average, four.
Q. About four pounds?
A. Yes, sir.
Q. And the average man would weigh about something like 150 pounds, would he not?
A. Yes, sir.
Q. Now, if you gave one ounce of the syrup, this Merchandise No. 5, to a rabbit weighing, say four or five pounds, in a day, that would be equivalent to giving about thirty ounces of syrup to an ordinary man, would it not?
A. No, sir; it would providing the only factor was the factor of weight, but we have to deal also with the factor of the resistance of the animal.
Q. Well, suppose that you were to give a healthy normal individual thirty ounces of syrup every day for a month or two, would that or not be calculated to have some very injurious effects on his stomach and intestinal tract generally?
A. Yes, sir.
Q. Suppose then you were to give him enough of syrup or some substance that he was totally unaccustomed to, that he didn't take under normal conditions, would that tend to enhance the deleterious effect of the syrup?
A. Yes, sir.
Q. Thirty ounces of syrup would be about how much in a common every day measure?
A. It would be about, roughly speaking, two pints.
Q. About two pints.
A. Yes, sir.
The Court: Figure it in glasses, how would that be?

BY MR. SIZER:

Q. How many glasses would it fill, like that? (Showing witness a glass.)
A. Why, I suppose about four.
Q. About four glasses full?
A. Yes, sir.
Q. Did you give them (the rabbits) this syrup in one dose each day?
A. Yes, sir.
Q. One dose; about what time of day?
A. It differed; there were so many experiments over so long a time that the time varied, but as a general rule it was in the morning.
Q. Did they seem to eat it with a great deal of relish; were they fond of it?
A. They were fed, they didn't eat it.

Q. They didn't take it voluntarily?
A. No, sir.
Q. How did you get them to take it at all?
A. It was fed to them with a stomach tube, that is the method in which we have to feed it to them.
Q. You put a tube into the stomach and poured the syrup through the tube?
A. Yes, sir. You have a little rubber tube, a catheter introduced into the stomach, and through this the liquid is introduced.
Q. Well, poking a tube down a rabbit's throat once a day for a month or two, that would be calculated to produce some inflammation?
A. No. I undertook to determine that point, I did some experimenting. I can tell you about if you would like to know, in which the tube was introduced into a rabbit's stomach the same way and left there for the same length of time and withdrawn and the rabbit lost no weight, and that was kept up for a month. And this was a water rabbit, the water experiments, in which the tube was used and in which the rabbits didn't lose weight.
Q. Did the rabbit take the water voluntarily or did you pour it down?
A. It was introduced in the same way through the stomach tube.
Q. And so you kept this up for how many days, fed them that ounce of syrup?
A. That varied with the rabbits, it was a different length of time; some of them didn't seem to be affected very much at the end of six months. I have them here if you would like to see them.
Q. Well, some had more resistance, Doctor, than others?
A. Yes, sir.
Q. And some got fat under that sort of treatment?
A. No, sir.
Q. I thought you said they increased in weight.
A. That was the water rabbit?
Q. Not any of the rabbits that you put this syrup into?
A. I don't recollect that any of them gained in weight except the water rabbits — yes, there was one rabbit, too.
Q. Well, he was a pretty hale sort of a fellow, was he?
A. Yes, the biggest rabbit I ever saw.
Q. A pretty healthy rabbit?
A. Yes, he was.
Q. Well, you know nothing about the ages of these rabbits?
A. The rabbits, the most of them, were obtained from

the Bureau of Animal Industry.

Q. They were young rabbits?

A. I could not say that in regard to them.

Q. They told you they were young rabbits — you don't know?

A. No, sir.

Q. There was no way of telling the rabbit's age from inspecting it externally?

A. No, sir.

Q. You can't look at his teeth and tell how old he is?

A. Well, I am not certain about it, I don't know about it.

Q. You do not know the ages of any of them?

A. Except that they were grown rabbits, not any undergrown rabbits.

Q. What is about the average length of a rabbit's life which is kept in captivity and a tube is poked into his stomach through which syrup is poured into him?

A. I don't think the injection of a tube would shorten the life, but I don't know the length of life.

Q. You don't know how long your rabbits would live if you were to pour simple syrup at the rate of an ounce a day into his stomach?

A. No, sir.

Q. You have performed no experiments along that line?

A. Yes, sir, I have with some simple syrup. I would like to show them to you if you would like to have them.

Q. I don't care about seeing them unless you can answer the question as to how long a rabbit will live when you pour an ounce of any ordinary syrup into his stomach through a rubber tube every day.

A. I don't know how long he would live, but I will say he would lose flesh.

Q. How long could he stand it, do you know?

A. No, sir.

Q. Do you know, Doctor, that this Mer. No. 5 contains a good deal of alcohol?

A. No, sir, that is not my understanding.

Q. Do you know?

A. I have it by hearsay, I don't know.

Q. You don't know what it contains?

A. I have some idea.

Q. It contains alcohol.

A. Well, it contains a little bit of alcohol, it is percolated with wine.

Q. Don't it contain sixteen per cent of alcohol?

A. That is certainly not my impression.

Q. You don't know then, and would not undertake to say?

A. No, I know simply from hearsay.

Q. What is that?

A. I know only from hearsay.

Q. Do you know what else is in Mer. No. 5?

A. I think Mer. No. 5 is made by percolating, ground up cola and decococalized coca leaves.

Q. Do you know that, Doctor, or do you testify to it?

A. I have been simply told that.

Q. I object to your testifying what you have been told — do you know that as a matter of fact yourself?

A. No, sir.

Q. You do not?

A. No, sir.

Q. Where did this particular Mer. No. 5 come from?

A. From Mr. Fuller.

Q. From who?

A. Mr. Fuller.

Q. That is Mr. Fuller who has testified as a witness here yesterday?

A. Yes, sir.

Q. Where did you get the Coca-Cola syrup that you used?

A. The Coca-Cola syrup was bought.

Q. Where did you buy it?

A. It was obtained through the Washington Drug Exchange, they bought that from Philadelphia.

Q. And do you know where they got it?

A. Yes, sir.

Q. How do you know?

A. From my records.

Q. How was that?

A. I have the records.

Q. You have got no other information about it?

A. The records are regular records.

Q. I didn't ask you whether the records were regular records.

A. Well.

Q. So you don't know personally whether it came from Philadelphia or not?

A. Yes, sir, as much as I know anything that I do not actually see.

Q. But I am asking you if you actually saw this and know where it came from — you are simply testifying from what the druggist told you as to where he got this stuff.

A. Well, I have the records to show.

Q. Have the records to show—you don't know whether

the records are correct or not.

A. No, sir, I could not verify the records. They are the regular official records of the Department, and there is no reason to believe them otherwise than correct.

Q. Well, now, I am not asking you to explain anything about the records. I want to know if you know from your own personal knowledge.

A. They do not go back of the records of the department.

Q. You say it was bought from a drug store in Washington?

A. The wholesale drug exchange.

Q. Did you make any analysis of it?

A. No, sir.

Q. You are not an analyst in any way, Doctor?

A. No, sir.

Q. Well, how much of the Mer. No. 5 did you get from Dr. Fuller?

A. Well, it was obtained — it was in 1908, and I would not be able to state definitely unless I would look up some records and see how much there was.

Q. You got it in 1908?

A. Yes, sir.

Q. Dr. Morgan, did you personally feed these rabbits during the entire course of these experiments?

A. Well, practically; no one else had anything to do with them, no one else fed them with the exception of ten days or two weeks when I was out West, and Dr. Kebler took my place.

Q. Now I understood you to say on the examination in chief that certain keepers fed them.

A. They had the cleaning out of the cages and looking out for the rabbits' health and welfare, but they did not have anything to do with the feeding of them.

Q. What was it that you fed them?

A. Do you mean in the way of food?

Q. Yes.

A. They received oats and cabbage.

Q. All of them?

A. Yes, sir.

Q. Each one received oats and cabbage?

A. Yes, sir.

Q. The same amount was fed each of them?

A. Yes, sir.

Q. The same amount of feed and the same character of feed?

A. Yes, sir.

Q. Were they all practically or apparently in the same

condition when the experiment started?

A. Yes, sir, all in the best possible condition.

Q. Now I want to ask you now, Doctor, would each one of them take as much as you fed it?

A. Well, speaking about the experiments since 1908, every other day they received fifty grams of cabbage.

Q. All the rabbits together received that?

A. Each rabbit received that, and the oats were not weighed that were given them, but they were put in a dish and it is customary to keep their receptacles full at all times.

Q. You didn't weigh the oats that you fed them?

A. No, sir.

Q. You did weigh the cabbage on certain of the experiments you say?

A. In all of the experiments since 1908.

Q. How about those made in 1908?

A. In 1908, a few cabbage leaves were scattered ——

Q. (Interrupting) Do you know whether all of the rabbits eat all you gave them during the experiments subsequent to 1908?

A. Subsequent to 1908, the rabbits ate all the cabbage which they received unless they were toward the end of the experiment when they were running down very fast, but taking it as a gneral rule except in the latter stages, they would eat the cabbage — it seems that the quantity was really a little short, if anything.

Q. Suppose that you were to feed a human being thirty ounces of syrup, just plain simple syrup, a day, would you expect him to eat the ordinary amount of food that he would normally take?

A. No, sir.

Q. You would not?

A. No, sir.

Q. It would have some sort of a depressing effect on his appetite, would it?

A. Yes, sir.

Q. And if he didn't take his regular amount of food, his condition would run down, would it, deteriorate?

A. Yes, sir, but these rabbits they ate very freely of their cabbage. They had no acute symptoms such as a man would have, or that syrup in large quantity would give, diarrhoea, to indicate that the syrup disagreed with them. These rabbits had no symptoms of that kind. They presented no acute symptoms like diarrhoea until towards the end. Just preceding death, they often had diarrhoea, and this was one of the symptoms which I learned to look for as showing that they were near death. But immediately

after feeding, they gave no signs of diarrhoea.

Q. As a matter of fact, most of them did die within a month or two, and those that did not die, you killed and found their digestive tracts very much inflamed?

A. I would not say that; they seemed to be somewhat inflamed. Some of them that died did not seem to be seriously hurt. I think that is a true statement.

Q. And some of them died from natural death, or died without being killed, that is true?

A. Yes, sir.

Q. And others you killed and found that the diet you had been subjecting them to had a deleterious effect on their internal arrangement.

A. Well, yes, changes were found, I would not say as to exactly the cause. I would not be prepared to state.

Q. You would not be prepared to state whether it was due to the diet or not?

A. No, sir.

Q. Well, they may have died from old age.

A. No, sir, they could not have died of old age; they were not old rabbits.

Q. Well, you say you don't know anything about their ages, only they were grown.

A. There was every indication that they were strong and healthy rabbits.

Q. They were not strong and healthy rabbits during the latter part of your experiment, some of them?

A. No, sir.

Q. Dr. Morgan, did you preserve any memorandum as to the sexes of these rabbits?

A. They were taken indiscriminately.

Q. You don't know whether any of them were pregnant at the time you were carrying on the experiments?

A. Yes, sir, I recollect one case where I was very much surprised by the appearance of a litter of rabbits.

Q. And would that be calculated to have any effect on the health of a rabbit?

A. Well, in such cases the experiment was stopped and started over again after they obtained a stable weight.

Q. Now, when you sent these rabbits over to the Bureau of Animal Industry, as you say, in order they might be experimented on, did you communicate to the people there who were to perform the autopsies, the nature of the experiments that you had been conducting?

A. No, sir, this was not done in these autopsies.

Q. Not in any of them?

A. No, sir; I would not say positively that in no case they did not know what the rabbit had been receiving, but

there was no inquiry made about it at all, and no information given intentionally on that subject.

Q. You did not have any control rabbits during any of these experiments?

A. These water rabbits, at first, were used as control.

Q. That was your first experiment?

A. Yes, sir.

Q. During the time that the other experiments were going on, you didn't have any control rabbits?

A. No, didn't need any.

Q. Now, I didn't ask you that, you didn't have any?

A. No, sir.

Q. Did you have any rabbits during any of these experiments to which you gave water and sugar alone?

A. There were syrup.

Q. How was that?

A These are the syrup rabbits to which I referred when you spoke a while ago.

Q. The first set of rabbits you gave pure water to?

A. Yes, sir.

Q. Now, when was it you conducted any experiments in which you fed rabbits sugar and water?

A. There was a set in 1908 and a set in 1911 in which plain syrup and water was used.

Q. In which what was used?

A. In which plain syrup and water was used.

Q. Was that experiment conducted at the same time you were conducting experiments as to water alone?

A. No, sir, that was done subsequently, I think.

Q. Did you have any other rabbits on which you undertook to experiment at the same time you were giving these rabbits sugar and water?

A. I don't remember just this moment about that.

Q. How much sugar and water a day did you give these rabbits that you made that experiment on?

A. I would not be able to say without looking the matter up how much sugar and water was given.

Q. Don't your notes show, Doctor?

A. Yes, sir, I think the proportions — I think the amount of sugar and water was practically the same as it is in the Coca-Cola syrup.

Q. What is the amount?

A. I can't say, however, what the amount is; I don't know.

Q. If you don't know the amount that was in the substance how do you know it was the same in the Coca-Cola substance?

A. It was prepared by a man for me who did know.

Q. You don't know as a matter of fact how much sugar there is in the coca cola syrup?

A. No, sir.

Q. Don't your notes show how much sugar it was you gave these rabbits?

A. Just the quantity daily that there is in the same amount of the coca cola syrup.

Q. Well now, what I want to know is whether or not your notes show the amount of sugar you gave or water that you gave to the rabbits that you fed that particular experiment on?

A. Yes, certainly.

Q. Well, refer to your notes and state it?

A. All right, sir. I have those notes here.

Q. Now the question I asked you was to state the amount of sugar and the amount of water that you fed to these particular rabbits per day in that experiment in which you say you fed syrup composed of sugar and water?

A. These three rabbits were given plain syrup two-thirds of an ounce, and one-third of an ounce of water.

Q. Do you mean two-thirds of an ounce of sugar?

A. No, sir, but the syrup is made up of the same density, or of the same sweetness as the coca cola syrup.

Q. How do you know that?

A. It was given to me by one of the analyists as having been made up in that way.

Q. You don't know how much sugar that syrup contained?

A. No, sir, but it was furnished to me by a man who did know.

Q. I say from your personal knowledge?

A. No, sir, I cannot say.

Q. You had that syrup prepared for you by somebody else?

A. Yes, sir.

Q. Two-thirds of an ounce of syrup?

A. Yes, sir.

Q. And how much water?

A. One-third of an ounce of water as a dilutent.

Q. Given each day?

A. Yes, sir.

Q. And over how many days?

A. Over fifty-nine days, when the experiments were discontinued. That was March 6th that I had to stop, and at that time these three rabbits had lived fifty-nine days.

Q. That is they had lived fifty-nine days since you had them, and you don't know how long they had lived before you got them?

A. They were healthy rabbits when I commenced the experiment.

Q. Well, I didn't mean to contradict you about the health of the rabbits, but I wanted to know how long they lived before you got them?

A. No, sir, I don't know.

RE-EXAMINATION BY MR. MILLER:

Q. Now, I understand you to say that you obtained this mixture from Dr. Fuller, Dr. Morgan?

A. Which mixture?

Q. The mixture that you fed these rabbits merchandise No. 5 and this syrup?

A. Yes, sir.

Q. And that caffeine and solution of water, state whether or not you received that from him also?

A. Yes, sir, from him.

Q. Now, he is an analyist?

A. Yes, sir.

Q. Now, as to the resistance of the man or a rabbit or the tolerance you said on cross-examination, as I understand you, that there was a difference between a man and a rabbit as respects body weight, that is to say that a man would not tolerate as much according to his body weight of caffeine as a rabbit would?

A. Yes, sir.

Q. Now, state whether or not that is the accepted theory by the medical men and writers generally?

A. Yes, sir, I think so.

Q. Do you know what the relative degree of tolerance or proportion is as respects body weight?

A. I think that ordinarily the rabbit has ten times as much or is ten times as resistant to caffeine as man.

Q. Do you know the weight of a man's brain?

A. It will average about fifty ounces.

Q. Do you know the weight of a rabbit's brain?

A. The rabbit's brain weighs about four grams per kilo.

Q. Well, take a four-ounce rabbit — I mean a four-pound rabbit, what does it weigh?

A. According to my recollection, and it is merely from recollection, the weight of the rabbit's brain is along about a drachm, as far as I can remember; I am not prepared to state that definitely.

Q. You are not prepared to state that definitely?

A. No, sir.

Q. I will now ask you to state whether or not sugar is found or is contained in the food that is ordinarily given to rabbits as a part of their daily food?

A. Yes, sir.

Q. And in what food does it occur which is ordinarily fed to rabbits?

A. I think it occurs in small quantities in both oats and cabbage.

Q. How about carrots?

A. The rabbits didn't get any carrots.

Q. Well, rabbits do get carrots?

A. Yes, sir.

Q. Is it fed to them frequently or not?

A. Yes, sir, it occurs in most instances.

Q. Does sugar occur in carrots?

A. I would not say positively, but it is my opinion that it does.

Mr. Sizer: I object to his belief.

The Court: The objection is sustained.

BY MR. MILLER:

Q. Now, as to the manner in which the rabbits were fed, that you experimented on, I will get you to state whether or not they were fed as rabbits are generally fed—now as to the manner in which the oats were fed to these rabbits, which you experimented on, I will get you to state whether or not they were fed oats in the way they are fed to the rabbits usually?

A. Yes, sir, the same method exactly.

Q. What is that method?

A. There is a saucer in the bottom of the cage and this saucer is kept supplied with oats at all times. There is no attempt made to give them any particular amount, simply kept full.

Q. Now, as to this coca cola syrup. I will ask you whether or not you drew that yourself from the keg that was contained in the department building there at Washington and from which these experiments on the rabbits of 1910 and 1911 were conducted?

A. Yes, sir, once.

Q. I will ask you to examine that keg there before you, which has been filed as an exhibit to the deposition of Dr. Fuller, and state whether or not that resembles the keg from which this product was drawn?

A. Yes, sir, it does.

Q. Now, have you the apparatus with which these rabbits were fed, both with the water and with the simple syrup and with the coca cola syrup, and then with the caffeine, or one substantially like that?

A. Yes, sir, I have the same one.

Q. I will ask you to exhibit that to the jury?

A. Yes, sir. This arrangement was used; it is just an ordinary soft rubber catheter; it is easy to adjust; it has a glass funnel here and the rabbit is fed by having an assistant hold the rabbit and then this is passed down into the rabbit's stomach, gently, and the liquid is poured into the funnel, and allowed slowly to run down by gravity into the rabbit's stomach.

Q. Is that the way in which the rabbits were fed the water and caffeine?

A. Yes, sir.

Q. And also the coca cola syrup?

A. Yes, sir.

Q. Now, doctor, have you a map which shows a summary of your feedings of these rabbits commencing with the water and coming up to and including March 6th, 1911, when you were obliged to discontinue the experimentations in order to attend this trial?

A. Yes, sir.

Q. And, if you have I am going to ask you to file it as exhibit No. 3 to your testimony?

A. Yes, sir.

Mr. Sizer: That is not in rebuttal.

Mr. Miller: Then I will ask leave to introduce it in chief; your Honor did not permit us to file our maps one at a time, and this is a summary of everything, and I would like to present it at this stage, as if presented in chief.

Mr. Sizer: We would like to see it.

Mr. Miller: We have no objections to your seeing it.

Mr. Sizer: Has it been filed?

Mr. Miller: No.

The Witness: The experiments were conducted in the same way as the others; it is a summary of the experiments; simply bunched together, the results, you see.

The Court: Well, you may show that to counsel on the other side.

Mr. Sizer: As far as we can judge this last map seems to be nothing but a summary of all of the others, and if the others are objectionable as evidence, this is not evidence; it is not the best evidence of the fact.

The Court: I do not think it is objectionable. The others were excluded on the ground of saving time.

Mr. Miller: We will ask the witness to file that map as exhibit A to his testimony, and to explain to the jury what that second line on the chart means, what it signifies as to the other lines, and you need not go into detail as to the others, they will understand from that.

The Witness: This is (the map) a summary of the exhibits which I have referred to here. Here is the same base

line, which is on the original drawing, showing the weight of the rabbits at the beginning of the experiments; here are the water rabbits, and here is the merchandise No. 5, and then we have the coca cola, 1910, that is there; that is one-third of an ounce; this here is the line with two-thirds of an ounce; and here is the line with an ounce, and I have drawn here in green a summary of the caffeine experiments, one with merchandise No. 5 with caffeine, and the other the solution of caffeine.

The Court. What is the quantity that would indicate the loss of weight, how many degrees or per cent?

The Witness: This is taken from the charts which are drawn to the scale, by use of tracing paper.

The Court: What is the scale, if you wanted to represent the average weight, the decrease of weight, for instance by five per cent, how about that?

The Witness: It would be included in this way, it would be placed on this side, the number of grams of loss at regular intervals, and on a regular scale, that is to say the result would be indicated by the amount in the drop of the line.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. Doctor, that map you file there, as I understand, that is just simply sort of an average of the result of your experiments, is that correct?

A. Yes, sir, a summary.

Q. And this does not indicate the result of any one experiment?

A. No, sir.

Q. But of all?

A. It is a summary of the whole.

Q. The fact is you testified awhile ago that one of these rabbits you fed coca cola syrup gained in weight?

A. Yes, sir.

Q. And why have you not got him on here?

A. Well because when you come to sum him up with the rabbits which died it brings his weight down below the line.

Q. Then I will object to that kind of a map.

A. Well ——

The Court: It merely indicates in a general way the general results.

Mr. Miller: We have the maps there which show it in detail and which were ruled out and we would be glad to show it and file them.

The Court: I don't think it is necessary.

BY MR. SIZER:

Q. So, doctor, this in the form you have it here listed, your experiments, you stated that a rabbit gained in weight, and against this loss in weight you undertook to show no average or nothing for the rabbit that gained in weight?

A. The idea was to bunch them up, as I said, and get the results together in the shortest possible way.

Q. But the point I am getting at is this, this map on its face indicates that all the rabbits you experimented with except the one you fed water to lost in weight?

A. Yes, sir.

Q. That is incorrect?

A. No, sir, the map is intended to indicate that setting off those that lost in weight against those that gained in weight, the loss in weight amounted to more than the gain in weight. Only one rabbit gained, and that is the one that we referred to, the general average was a loss.

Q. And that one rabbit does not show up?

A. Only by way of an average.

Q. I will ask you this, doctor, you took this instrument, this catheter, you put that tube into the rabbit's throat, and when you inserted it, didn't it pass on down through the stomach and into the intestines?

A. Oh, no.

Q. Well, how do you know it didn't?

A. It would be impossible to pass it through on account of the shape of the stomach; it would not pass.

Q. Is it true that the ordinary results of feeding rabbits even the food to which they are accustomed to through a tube is injurious to them?

A. No, sir.

Q. Did you ever hear of a rabbit dying from being fed milk through a tube?

A. No, sir, never did.

Q. Do you know anything of the experiments of Seller & Hamburger on feeding rabbits through tubes?

A. No, sir.

Q. You never heard of them?

A. No, sir.

Q. And if they ever made any experiments of that kind you don't know it?

A. No, sir.

Q. Now, what was it you said about the rabbit's tolerance for caffeine?

A. I think that the rabbit is much more resistant.

Q. How much more?

A. The rabbit, ordinarily speaking, about ten times.

Q. Is that statement based on your own experience, or on what somebody told you?

A. That is based on the results of experiments and by what I have read.

Q. In what work did you read that statement?

A. I never saw that exact statement in print.

Q. You never saw that in any book?

A. No, sir.

Q. What was it that you got that from?

A. Well, so far as the printed statement is concerned, in Muccioli's book.

Q. What is that book?

A. It is an Italian book on or work on the subject of Toxicology, in which he states caffeine is fatal to man, the dose is two and three grams, and our experiments in the Bureau have shown that the lethal dose for rabbits is about two and a half grams per pound and that by taking the two together you can arrive at an estimate. There is no direct statement so far as I know.

Q. Where did you say — why did you have to go to that Italian work to find out the lethal dose of caffeine?

A. I didn't see it anywhere else is all.

Q. Is it a well known fact that there is not a case known in medical literature of death caused by caffeine to any human being?

A. There are a number of instances in which death has been caused by caffeine.

Q. In what work do you find that?

A. Zenetz reports three cases of death by caffeine. Liell has reported one case, it is reported in Butler's Pharmacology. I do not recall at this moment any more, but I may be able to supply you with further references if you wish them.

Q. We would like to get them, we would like to get any further references you may have on that subject, any further cases of death caused by caffeine if you know of any. What is this work Zenetz?

A. A work on Toxicology.

Q. Have you that work with you?

A. I don't say for certain; I may have it, I am not positive about it.

Q. What are the doses of caffeine that result in death according to Zenetz?

A. I am not familiar with the details.

Q. Would you have to look it up?

A. I don't remember that, he reported three cases of death from caffeine.

Q. You don't remember where those cases were?

A. No, sir.

Q. And none of the details about it?

A. No, sir.

Q. Now, about the Liell case, is that one of the three cases Zenetz refers to?

A. No, sir, it is a different one.

Q. But Liell only refers to one?

A. Yes, sir.

Q. Do you remember of the details of that case?

A. No, sir; it is in Butler's Pharmacology.

Q. Do you remember the details of any of those cases?

A. No, sir.

Q. Did you ever experiment on rabbits to see what would be fatal single dose of caffeine?

A. No, sir.

Q. I believe you say that the brain of a rabbit was not much smaller proportionately than the brain of a man. On the other hand, it is true that the spinal cord of a rabbit is much larger proportionately than the spinal cord of a man?

A. I would not be prepared to answer that question.

Q. Then your testimony about the comparative size of the brain of rabbit and man is just your guess?

A. No, I saw a rabbit's brain weighed, but I never saw a rabbit's spinal cord weighed.

Q. You didn't make any examination of the spinal cord in any of these subjects?

A. No, sir.

Q. It is a fact that caffeine affects the spinal cord very materially?

A. Both the brain and the spinal cord.

Q. Both the brain and the spinal cord.

A. Yes, sir.

Q. What kind of sugar was it you fed to these rabbits?

A. Just plain cane sugar.

Q. Cane sugar?

A. Yes, sir.

Q. That is not the kind that they get in vegetables?

A. I am not positively certain about that, I don't know, but I think not.

Q. Cane sugar does not appear in vegetables?

A. Yes, sir, it is cane sugar.

Q. It does not appear in vegetables that rabbits eat?

A. I don't know, I am not capable of saying, I don't know; I never studied the subject out.

Mr. Sizer: That is all, except I would like to have this witness get these authorities and produce them tomorrow, and we would like the privilege of asking him about them.

The Court: If you can get these books, bring them in.

Mr. Miller: We will have them produced in the morning and will ask leave to file them as Exhibit No. 1 to his testimony.

or a synopsis of the reported deaths by caffeine, if that is what counsel desires, and I suppose it is.

Mr. Sizer: What is that?

Mr. Miller: We will ask him to put it in typewritten form and file it as Exhibit No. 1.

Mr. Sizer: No, we want the books here.

Mr. Miller: We will bring down all the books we have on that point and file them as Exhibit No. 1.

The Court: You can offer them in evidence and I will rule on them at that time. The witness will get such books as he can for counsel. Is there any re-examination

Mr. Miller: Nothing except when he produces that statement.

(Thereupon Court, at 3 o'clock P. M., adjourned until 9 o'clock A. M., Wednesday, March 15, 1911.)

Chattanooga, Tennessee, Wednesday, March 15, 1911.
Nine o'clock A. M.

The Court met pursuant to adjournment.

Appearences: The same as on yesterday.

PLAINTIFF'S EVIDENCE CONTINUED:

F. P. MORGAN

resumed the stand for further cross examination.

CROSS EXAMINATION, CONTINUED,
BY MR. SIZER:

Q. I asked you on yesterday, Dr. Morgan, to produce the authorities which you state contain the accounts of death resulting from the use of caffeine.

A. Yes, sir, I have those references.

Q. Have you the authorities?

A. Not here in court; I was to present references, I understood.

Q. What are the authorities to which you refer?

A. Well, excuse me until I—

Gen. Cox: (Interrupting.) Just a little louder, Doctor.

The Witness: All right.

BY MR. SIZER:

Q. State what they are.

A. Zenetz is one of them, in the Semaine Medicale, 1899, which records—

Q. (Interrupting.) Now just a moment—that is a periodical, isn't it?

A. Yes, sir.

Q. Have you the original periodical?

A. Not in the court room.

Q. Have you got it with you in town?

A. Yes, sir.

Q. I will ask you to bring the original document that you refer to.

A. I understood I was to furnish references. That was my information.

Q. That was not my question, I asked for the book.

Mr. Miller: That belongs to the Surgeon General's office, and while we have the volume here and all that, we are not prepared to put that in evidence, we are not prepared to file that book, but we should be very glad to let counsel look at it, as we did that little bulletin presented yesterday, by me to him, but we are not prepared to put the book in evidence. The question asked this witness was whether he had ever heard of any cases of killing by caffeine. Now the witness has produced a list of the cases he has heard of.

Mr. Sizer: The question that I asked the witness was expressly that he produce the original authorities that he referred to in that statement.

Mr. Miller: I will appeal to the stenographer's notes in regard to that.

The Court: That will be immaterial. The witness cannot be required to produce books, but as opposing counsel has consented that the book may be brought in, that may be done.

M. Sizer: We would like to have that book.

The Witness: All right.

BY MR. SIZER:

Q. What other authorities do you refer to?

A. Gautherin, in the Paris Thesis, 1905, reports two cases of deaths by caffeine.

Gen. Cox: How many cases did Zenetz report?

The Witness: How many cases?

Gen. Cox: Did you say three?

The Witness: Zenetz, three, and Gautherin, two.

BY MR. SIZER:

Q. And what others?

A. Lemaire, M. B. Lemaire, in the Journal of Medicine of Bordeaux, Vol. 39, May 9, 1909, page 294, and following pages, reports one.

Q. Well, both of these references given, that is the article by Lemaire and the one by Gautherin are in periodicals?

A. Yes, sir; I am not absolutely certain whether the Paris Thesis is published.

Q. Is that all you have?

A. Yes, sir.

Q. Did you mention Liell on yesterday?

A. I wish to correct my statement in regard to that; that was a mistake; Liell reports a case of poisoning and not a case of death.

Q. You also referred to Butler.

A. I think he reports that case of Liell's.

Q. That is the same case?

A. Yes, sir.

Q. And that is all the references you have?

A. In the cases of death; there are some more cases of poisoning.

Q. Now I want to ask you about the time that elapsed between the death of these rabbits that post mortem examinations were held on, and the date on which you got report of the autopsies.

A. The report of autopsies were received at varying intervals after the death of the rabbits; the autopsies were performed promptly.

Q. You say they were performed promptly, now you don't know that only by the statements made by the officials who performed them.

A. Yes, sir, and in the cases of the one in 1908 where I was present myself.

Q. I mean, the length of time that elapsed from the time the rabbits died or were killed and the date on which you received the report of the autopsies?

A. The report was returned in some cases in a day or two, and in some cases it depended, I presume, upon how busy the Bureau was and how soon they were able to return the report, but I could not say exactly any number of days in any case.

Q. What amount of caffeine did you administer to these tested rabbits per dose?

A. In 1908, there was a grain, one grain of caffeine, added to each daily dose, with the Merchandise No. 5.

Q. You gave them Merchandise No. 5 and one grain of

caffeine in addition?

A. Yes, sir, I did.

Q. That was each day, and in one single dose?

A. Yes, sir, in 1911, the caffeine was given in two-tenths (2-10ths) of one per cent solution.

Q. How much was that per dose?

A. Some days under one grain.

Q. How much under one grain?

A. It was equivalent to the Coca-Cola, the same amount of caffeine in the Coca-Cola.

Mr. Miller: I beg your pardon, I didn't catch that.

The Witness: The amount of caffeine which was present, I said, was the same as that in an equivalent quantity of Coca-Cola.

BY MR. SIZER:

Q. How do you know that?

A. The preparation was made for me by Mr. Fuller who is aware of the analysis of the Coca-Cola, and he told me so.

Q. I am not asking you to testify about the analysis of someone else, that somebody else made, you don't know how much caffeine is in any given quantity of Coca-Cola?

A. No, sir, not from my own knowledge.

The Court: I hope the witness will be careful, they are all intelligent men, be careful to limit their answers to what they saw, and not to what other people have told them about anything, because it takes up a great deal of time in explanations of that kind that are unnecessary, and each one shall be limited in his testimony to his own knowledge.

BY MR. SIZER:

Q. State how much caffeine you gave per dose to these rabbits in this particular experiment you are now referring to.

A. Two-thirds of a grain.

Q. How much?

A. Two-thirds of a grain.

Q. How much liquid did you give along with that caffeine?

A. They received liquid in which the caffeine was dissolved, and in addition, one-third of an ounce of water.

Q. What was the liquid in which the caffeine was dissolved?

A. That was in water.

Q. How much water was it dissolved in?

A. Two-thirds of an ounce, an ounce in all.

Q. And you gave two-thirds of an ounce of water and two-thirds of a grain of caffeine?

A. With the addition of one-third ounce more of water, making an ounce in all.

Q. That was a dose?

A. Yes, sir.

Q. An ounce of water and two-thirds of a grain of caffeine?

A. Yes, sir.

Q. Assuming, Doctor, that there is sixteen per cent. of alcohol in Merchandise No. 5, would that alcohol in the dose that you administered to these rabbits that were fed Merchandise No. 5, would it be deleterious on account of the quantity of alcohol contained therein, aside from any other substances?

A. Sixteen per cent. of alcohol in Mer. No. 5, I should judge that the alcohol would have a deleterious effect if that quantity were present.

Q. What would be the effect on the digestion of any animal administering through a rubber tube a substance that it did not and was not accustomed to take, aside from any question of the inherent deleteriousness of the substance itself?

A. I should think necessarily it would have any effect.

Q. Is it a fact that the digestion of a substance or food in the system depends greatly on the desire of the animal for that substance?

A. I don't know, I never say any statement on that subject. I am not prepared to state.

Q. Did you kill any of these rabbits in undertaking to put that tube down their throats?

A. Yes, sir.

Q. How many?

Q. I presume that occurred, I don't know, in half a dozen cases.

Q. You don't remember distinctly?

A. Not exactly.

Q. Those rabbits are the same kind, that is the same breed of rabbits, the same color?

A. No, sir.

Q. Well of what kind, what different kind did you have?

A. They were the ordinary domestic rabbits.

Q. Do you remember what color they were?

A. Yes, sir, some of them were brown and some of them pure white.

Q. That is the white, pink-eye variety?

A. Yes, the albino.

Q. How many of them?

A. I don't recollect but one of the albino, I think there

were two or three additional white rabbits.

Q. And then there were some other kinds of rabbits?

A. And then there were some black rabbits; in so many as we had there, there would be a good many kinds representing the colors.

Q. The rabbits then differed in color and kind, and the black rabbits are different from the brown rabbits?

A. Not as far as I know.

Q. Are you sure of that?

A. They do not differ essentially. They are similar in their general physical appearance.

Q. You say they are similar in their general physical appearance, but if it is not true that black rabbits and white rabbits and brown rabbits are different rabbits, different varieties?

A. No, I am not certain about that. I know there are some varieties. The brown rabbits are more akin to the English hare, I believe. I would not say there was no distinction between them, but not such as to make any difference in experiments of this kind.

RE-EXAMINATION, BY MR. MILLER:

Q. Doctor, you stated with reference to the pages of these publications on which will be found the recorded deaths due to caffeine poison, did you?

A. Yes, sir.

Q. Did you give these pages to the stenographer?

A. The pages?

Q. Yes.

The Court: I think he gave the pages in every instance.

The Witness: I don't think I gave the page in the case of Zenetz. I have not the book here in the case of Zenetz. In the case of Lemaire, I gave the pages.

BY MR. MILLER.

Q. Now then, will you kindly refer to those cases of caffeine cases from which you say the persons recovered, as reported, and give the medical authorities where that appears by page, so that adverse counsel may have the citations?

M. Sizer: I object to that.

The Court: What is the ground of your objection?

Mr. Sizer: The rule is this—the witness may be asked on cross-examination that to test the correctness of the statement, to produce whatever he bases the statement on, but he cannot be asked on direct examination to produce authorities in support of the testimony he gives on direct examination, and for that reason, the authorities are not

prima facie evidence.

Mr. Miller: My point is that was brought out in cross examination—he was asked about these cases, and he said they were reported cases of death and reported cases of poisoning.

The Court: He volunteered the statement about the poisoning, he was only asked about the death cases on cross-examination, and I will sustain the objection.

BY MR. MILLER.

Q. I will ask you whether or not you have at hand citations from the standard medical publications in which there are reported deaths from poison and if you are willing to give them to adverse counsel if permitted?

A. Yes, sir.

Mr. Sizer: He has already given these.

Mr. Miller: Not of the poisoning cases, he was not permitted to do so.

Mr. Sizer: I didn't ask him about those. That don't refer to cases of death.

Mr. Miller: I mean poisoning due to caffeine. I called for that and the last answer was excluded.

Mr. Sizer: I object to that question, I didn't ask him anything about the reported cases of caffeine poisoning, and I submit it is immaterial and improper to ask the witness whether he has such authorities on that subject.

The Court: The exception is sustained. You may ask this witness the direct question whether he qualifies as an expert and whether it is recognized in medical works poisoning from caffeine, and then if they want to, they can call for his authorities.

BY MR. MILLER.

Q. I will ask you if you have a compilation of authorities also on that point.

The Court: The exception is sustained and the answer is excluded.

Mr. Miller: We kindly note an exception.

BY MR. MILLER.

Q. Now, in addition to these autopsies that were performed by Dr. Eichorn and for Dr. Formad, about which you testified on yesterday, state whether or not various other autopsies on these rabbits were performed by Dr. Gallagher, of the Bureau of Animal Industry.

Mr. Sizer: The witness has stated he didn't know about that.

The Witness: I beg your pardon.

The Court: If this witness was present when Dr. Gallagher performed any autopsies, he may state, but he has been cautioned that if he did not know the same were performed or was present, he should not state, he should only state what he knows.

BY MR. MILLER:

Q. Did you know whether certain of the autopsies were performed by Dr. Gallagher, I will ask you if you know that certain of them were performed by Dr. Gallagher.

A. I do.

The Court: Is that from your own personal knowledge, from what you saw?

The Witness: Is it permissible to tell what Dr. Gallagher told me?

The Court: No.

The Witness: I did not observe any of the autopsies perfomed by Dr. Gallagher.

Mr. Sizer: Then I move to exclude the answer.

The Court: The answer is excluded and the exception sustained.

BY MR. MILLER:

Q. Did you receive from the Bureau of Animal Industry a list showing that any of the animals were examined by Dr. Gallagher, and is so, I wish you would give the number —I ask for that because they were sent over, and I am going to introduce Dr. Gallagher when comes as to that, he is on his way here.

The Court: This testimony is entirely surperfluous. If Dr. Gallagher is going to testify to that.

Mr. Miller: But I have to get the numbers.

The Court: This witness has been asked to file a list with the number.

Mr. Miller: That has reference to those on which autopsies were performed by Drs. Eichorn and Formad.

BY MR. MILLER:

Q. But I will ask you to supplement that list which adverse counsel called for yesterday, by a list of the rabbits on which Dr. Gallagher, or on which you were informed Dr. Gallagher performed autopsies, and show opposite these numbers the numbers which were reported back of the animals on which Dr. Gallagher was reported to have performed autopsies.

Mr. Sizer: Your Honor, I object to that.

The Court: Yes, I sustain the objection. It is simply

calling for his opinion. He has stated that he did not know what Dr. Gallagher did.

BY MR. MILLER:

Q. I will ask you to file a list or a supplemental list in addition to the one called for yesterday, by numbers of all other rabbits that were sent to the Bureau of Animal Industry for post mortem examination during the years 1908, 1909, 1910 and 1911; will you do that?

A. Yes, sir.

Mr. Sizer: With reference to the animals sent by Doctor Morgan to the Bureau of Animal Industry?

Mr. Miller: Yes.

Mr. Sizer: Well, that is all right.

BY MR. MILLER:

Q. Now, state if you know Doctor Gallagher.

A. Yes, sir.

Q. And what was he engaged in at the time these post mortem examinations were being held on rabbits that you experimented on?

A. What was his business.

Q. Yes.

A. He was a regular employed member of the Bureau of Animal Industry and in the Pathological Division.

Q. Was there but one Doctor Gallagher there?

A. B. A. Gallagher, he was the only one.

Q. Now, as to these mixtures that were received from Doctor Fuller, I will get you to state whether or not in each instance where the mixture was received you were told by Doctor Fuller the contents of the mixture as respects caffeine, Coca-Cola, syrup, and Merchandise No. 5.

Mr. Sizer: I object to that.

Mr. Miller: The object of that is that I am trying to connect it up, I am going to introduce Doctor Fuller to show he told him as to what was in it.

The Court: Well, I will let that go in.

The Witness: Yes, sir.

The Court: The only purpose in admitting it is not for the purpose of showing what was in these mixtures, but of identifying them as the same ones that Doctor Fuller may testify to when he is examined, it is to connect up, that is all.

BY MR. MILLER:

Q. In your original cross-examination when you referred to having given certain quantities of caffeine and of Coca-Cola syrup and of simple syrup and of Merchandise

No. 5, I will ask you to state whether or not you took Doctor Fuller's statement as reported to you by him as being correct, and whether you observed that in the feeding of the rabbits.

A. Yes, sir.

Q. Now, you stated that in perhaps a half a dozen cases there was death in inserting the tube in the stomach of the rabbits.

A. Not in these particular rabbits but in others.

Q. Not in these particular rabbits?

A. No, sir.

Q. In that kind of cases what would be the minifestations, if any, when the rabbit was killed, as to the cause of death?

A. The autopsy would show the tube had entered the air passage instead of the stomach.

Q. And these rabbits, when they were examined on autopsy, were there any indications of deleterious results from the tube having entered the air passage?

A. There was in one.

Q. In only one?

A. Yes, sir.

RECROSS-EXAMINATION, BY MR. SIZER:

Q. Doctor, did you perform any autopsies on these rabbits that you killed in trying to put the tube down the throats?

A. Just that one.

Q. That was the only one you performed the experiment on, was it?

A. Yes, sir.

Q. But I mean these rabbits that died while you were trying to put this tube down their throats, whether there were any autopsies performed on them.

A. No, sir. The experiments had not begun.

Q. Then you do not know what it was that caused the death of these rabbits?

A. Yes, sir.

Q. How do you know?

A. They died immediately; I know from the symptoms.

Q. Well, you undertook to state on re-examination that the rabbits died from a particular cause. All you know now is that they died while you were trying to put the tube down their throats?

A. I know they died as a result of the tube not going down the throat and into the air passage.

Q. You say you know that because the tube went down the air passage?

A. Because of the tube going down the air passage instead of into the stomach.

Q. You know that?

A. Yes, sir.

Q. Well, how do you know it?

A. Well, I know it because of the suffocation.

Q. Might they not have died from nervous shock caused by that tube being put in them?

A. No, sir.

Q. How do you know?

A. Because of the suffocation.

Q. What would be the symptoms that would be manifested in cases of nervous shock from the tube being thrust down through the esophagus?

A. I can't conceive of any such condition, can't conceive of a rabbit being so shocked.

Q. You can't conceive of a rabbit being shocked?

A. No, sir; there is no shock connected with the injection of the tube. It is unattended with any shock of any kind.

Q. You are not prepared to say what would be the symptoms that would attend a death from that cause?

A. I am unable to conceive of a case of that kind.

Q. And therefore you are unable to say what would be the symptoms?

A. Yes, sir.

The Court: I think that has gone far enough.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. Doctor, I don't know that I clearly remember what you stated upon yesterday as to the receipt of this Coca-Cola syrup; I believe I understood you drew part of it yourself and the remainder was delivered to you by the keeper of the storehouse in the department.

A. Yes, sir.

Q. From what receptacle did you draw the Coca-Cola syrup, which you used?

A. The original keg.

Q. What sized keg?

A. This keg here. (Indicating.)

Q. You mean the keg on exhibition?

A. Yes, sir.

Q. Or one like that?

A. Yes, sir.

The Court: As I understand you, you conducted experiments with plain syrup, sugar and water, as a part of your general series of experiments on these rabbits.

The Witness: Yes, sir.

BY THE COURT:

Q. Well, now I would like to have you tell us the results of that. You never stated that in your testimony. I would like to have that.

Mr. Miller: I asked for that chart to be filed but it was ruled out yesterday.

The Court: I don't understand the experiment appears on it.

The Witness: I think, your Honor, Mr. Sizer asked me about this yesterday, these are the same experiments which I testified in regard to yesterday, three experiments.

The Court: Just give the results; just give the results as you did in the other cases.

The Witness: The three rabbits were employed and they were given daily plain syrup, two-thirds of an ounce with one-third of an ounce water, making an ounce in all. The three rabbits lived fifty-nine days. That brought the experiments up to March the 6th when I had to close it up and so the rabbits were sent over to the Bureau of Animal Industry for autopsy.

The Court: You mean they were killed.

The Witness: They were not killed by me but they were killed there, they lived fifty-nine days. In that time they lost an average of 215 grams.

The Court: What per cent. of weight?

The Witness: 15.5 per cent. of gross weight—they lost an average of 15.5 per cent. of gross weight.

The Court: You say they lost an average of 15 per cent. of gross weight?

The Witness: Yes, sir, of their body weight, of the three combined rabbits—no, each rabbit lost 15 per cent. of its weight.

The Court: If you will indicate on your list there the rabbits that were sent there, will you do, that, those three rabbits?

The Witness: They were sent also to Doctor Formad. to the Bureau of Animal Industry.

The Court: Well, just identify them by number.

The Witness: Yes, sir. I will include them on the same list.

BY MR. SIZER:

Q. Did they lose in weight, or did that loss in weight take place uniformly every day, from day to day?

A. No, sir.

Q. In any case, was the loss regular and uniform?

A. There was a variation from day to day.

Q. Did it increase as a general rule towards the latter part of the experiment?

A. No.

Q. At what particular period in the experiment was the loss in weight greatest?

A. I could not say definitely, the loss is pretty nearly uniform—there is not any particular difference.

Q. Pretty near uniform during the entire period?

A. I did not mean to say there was no daily variation, there was a considerable daily variation.

Q. Well, assuming that loss was practically uniform, how long would it take the weight of the rabbit to be reduced to nothing if that course was pursued?

The Court: That is merely mathematical calculation.

BY MR. SIZER:

Q. Well, were these rabbits weighed at the same hour every day?

A. No, sir.

Q. Were they fed at the same hour every day?

A. I would not say—no, I don't know whether they were or not.

Q. Were they weighed before feeding or afterwards?

A. Always weighed before feeding.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. You have charts showing all the animal experimentations, I understand.

A. Yes, sir.

Mr. Miller: I can offer these charts, — I offer them now, the one where the rabbits were fed on the simple syrup and also offer to file the others as exhibits.

The Court: They have been excluded for the reasons already stated.

BY MR. SIZER:

Q. Did you weigh these rabbits yourself from day to day after the feeding began?

A. I weighed them—I might not have actually put the weight on the scales but I stood there and watched it.

Q. Well, you saw them weighed?

A. Yes, sir, it was done right in my presence.

The Court: Does that general chart show the simple syrup experiment?

Mr. Miller: I don't think this one does; those that we offered in evidence yesterday do.

The Court: Then he may put that line of simple syrup

experiment on that general chart.

Mr. Miller: I will ask the witness to do that, then.

Thereupon,

DR. J. W. HOOVER,

of lawful age, was produced as a witness on behalf of the Government and being first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Dr. Hoover, how old are you?

A. Thirty-five.

Q. And what is your profession?

A. I am a chemist.

Q. Connected with what department or institution, if any?

A. I am chief of the Drug Inspection Laboratory, Bureau of Chemistry.

Q. At Washington?

A. Yes, sir.

Q. State, Doctor, whether or not you brought down with you from Washington the keg that has been introduced in evidence as an exhibit to the deposition of Doctor Fuller in this case.

A. I did.

Q. Did you bring it down intact?

A. I did.

Q. State whether or not that keg is now partially filled.

A. It is.

Q. Where, when and under what circumstances was that keg purchased?

A. That keg was purchased in June, 1910, for the purpose of experimental work, for Doctor Morgan.

Q. What date in June was it delivered into the warehouse of your Department at Washington?

A. On June 13.

Q. Was there one or two kegs purchased at that time?

A. There were two 5-gallon kegs.

Q. That is one of them that is here?

A. Yes, it is.

Q. State from where you procured that keg, at the time you started down here with it.

A. From the store room, Bureau of Chemistry, Division of Drugs.

Q. State whether or not any portion of the seized mixture of Coca-Cola in this case was received at the store house and came under your observation shortly after the seizure.

A. There was.

Q. I will get you to state whether or not any portion of that mixture was transmitted by you or under your supervision to Doctor Boos of Boston.

A. There was.

Q. How was that mixture sent, in what kind of container was it sent to Doctor Boos?

A. The mixtures was placed in a bottle and forwarded to Doctor Boos of Boston.

Q. By what means?

A. By express.

Q. Probably how soon after the seized product was received into Washington?

A. I don't just exactly understand that question.

Q. I say, probably how long after the product that was seized was received at the store house in Washington?

A. It was probably only a few days. The exact date, I would not be able to state.

Q. State whether or not a portion of the contents of this keg that is now in evidence was utilized in the feeding of the rabbits on which Doctor Morgan experimented.

A. There was.

Q. State whether or not the contents of this—

A. (Interrupting) Pardon me—I would like to modify that statement. I would like to state that a portion was taken from this keg and delivered to Doctor Morgan.

Q. This particular keg that is now in evidence?

A. Yes, sir.

Q. State whether or not a portion of the contents of this keg as it was originally purchased is still in the keg.

A. Yes, sir.

CROSS-EXAMINATION, BY MR. SIZER:

Q. The sample that you sent to Doctor Boos, Doctor Hoover, was taken, I believe you say, from a keg that was received in Washington by express.

A. A portion from the original seizure.

Q. That is, you do not know that it was the original seizure, but you simply know that the keg came to Washington?

A. Came; yes.

Q. How do you know that?

A. I don't just exactly understand the question.

Q. I say, how do you know that it was the keg that was originally seized.

A. I say I don't—it was that that was received; that was received.

Q. Received in Washington?

A. Yes.

Q. Of course you were there present when the seizure took place?

A. I don't know anything about that at all.

Q. That is the same keg from which samples were taken by Doctor Fuller and Doctor Emery for analysis and analyses?

A. Yes, sir.

Q. And this other keg from which samples were delivered to Doctor Morgan, you say that was purchased by you in June, 1910?

A. It was purchased by the inspector in June, 1910.

Q. You did not purchase it personally?

A. No; I did not purchase it personally.

Q. You do not know where that inspector got it?

A. Yes, I do.

Q. How?

(The witness here refers to memorandom.)

Mr. S[illegible] I do not want you to testify to any report the inspector made to you. I want to know if you personally know where the inspector got that keg.

The Court: If he got a bill for purchase, and paid it, that would be all right.

BY MR. SIZER:

Q. Have you got a bill?

A. Yes, I have a bill here dated the 6th month and 13th day, 1910, "Department of Agriculture, Washington Wholesale Drug Exchange, Dr. Two 5-gallon kegs Coca-Cola," and I also have a record here of the inspector's slip, it is called, with that, and additional information to that effect.

Q. So that the information you have or the knowledge on which you base that statement that this keg was purchased, this particular keg was purchased by a particular inspector, consists merely in the fact that you have a bill for a keg of Coca-Cola from a certain house in Washington, and that you have the inspector's report that he bought a keg of Coca-Cola at a certain time?

A. That is was received at a certain date.

Q. What he bought at that date?

A. Yes, sir; and that it was received at that date.

Q. How much of the contents of that keg did you send to Doctor Boos?

A. There was about, I think, two liters. There was a quantity, about three quarts.

Q. About how much?

A. About three quarts.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. Now, when counsel asked you as to this keg, you mean the keg that is now in evidence or do you mean part of the seizure?

A. I mean the keg which is now in evidence.

Q. Was there a part of this keg drawn off and sent to Doctor Boos?

A. No, sir.

Q. Now, then, this particular keg that is now before you, as I understand, was one of two that came in the 13th of last year?

A. That is correct.

Q. This shipment that was sent to Doctor Boos,—state if you recall whether or not that was taken from the keg that was sent up or whether or not that was taken from jugs.

A. That was taken from jugs.

Q. That was sent up by Inspector Lynch?

A. Yes; from the jugs.

Mr. Miller: That is all, I believe.

(Witness excused.)

DR. H. C. FULLER

was recalled on behalf of the Government and testified further as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Dr. Fuller, have you heard the examination this morning of Doctor Morgan?

A. Yes, sir.

Q. I will get you to state whether or not, in delivering the mixtures, Merchandise No. 5 and the Coca-Cola syrup and any other ingredients that he received from you to feed these rabbits with on which he experimented when you gave him information as to the contents of such mixtures, whether or not that was truthful and to your knowledge known to be correct.

A. Yes, sir.

Q. That was made up under your supervision?

A. Yes, sir.

Q. By you. State whether or not a portion of the product originally seized was sent or drawn out of the original receptacle in which it was received, for the purpose of being sent to Doctor Boos at Boston.

A. It was.

Q. Now, Dr. Fuller, I am going to ask you if you are prepared to take the contents of this keg that is now in evidence and which Doctor Hoover has shown was received in

the store house on June 13 last, and made an analysis of the contents of this keg and tell us whether or not it compares and how it compares with the Coca-Cola mixture which you have previously analyzed. Are you prepard to do that?

Mr. Sizer: I object to that question, may it please your Honor. I do not think that it relevant or competent in any way.

The Court: I suppose that is for the purpose of showing that the syrup fed the rabbits is the same as this.

Mr. Sizer: He asked the witness whether he was prepared to make it.

Mr. Miller: I ask him whether he was prepared and qualified to do it.

Mr. Sizer: I submit that is entirely incompetent and immaterial.

The Court: The objection is overruled.

BY MR. MILLER.

Q. State how that is, Doctor.

A. I am.

Q. I will get you to state whether or not you will do that, and whether or not you are willing for any of the chemists who are present to witness your experiments and your analyses of this mixture.

A. I am.

Mr. Miller: On behalf of the libellant in this case, we invite chemists that we know are present on the other side, to take a part of this mixture for the purpose of checking Doctor Fuller's experiments in this behalf in his analysis. We are perfectly willing to give them part of the contents of this keg, if they desire. We simply desire to go on record as making that offer.

Mr. Sizer: I do not know exactly what kind of testimony that is but I am objecting to it, anyway.

The Court: The objection is overruled. The intervenor claimant does not raise any question that the Coca-Cola syrup was anything but the ordinary Coca-Cola syrup—if it does not raise that question, this will be unnecessary, and entirely superfluous.

Mr. Sizer: I will just state that so far as I know we have no question of that kind to raise.

The Court: Until any question of that sort is raised, then it will be unnecessary to have the analysis made.

Mr. Sizer: I have not seen anything yet to indicate that we would care to raise any such question.

Mr. Miller: I thought from the cross-examination of these witnesses that has been going on that it tended to do that.

The Court: You have shown that it came from a regular commercial house, wholesale house, and until some question is raised I think it is unnecessary.

Mr. Miller: There is just this point: It requires about three days to make a careful analysis, and we shall be very glad to be relieved from that.

The Court: I do not think there is any necessity for it unless that question is raised, that it is not the ordinary Coca-Cola syrup.

Mr. Miller: Very well.

BY MR. MILLER.

Q. Doctor Fuller, state whether or not you have ever known or heard of any products being sold under the name of Coca, or any yield of this shrub from which the coca leaf, c-o-c-a, the coca leaf, is taken, being bought or sold in the United States under the name of coca, except the leaf.

Mr. Sizer: That is going back to the same line of examination—

The Court: I do not recall whether this witness was asked this specific question. He was asked under what name the leaf was sold, but I do not recall whether this specific question was asked. You may go ahead.

Mr. Sizer: Just read the question.

The Court: I think the witness caught the question.

The Witness: Yes, sir; I understand the question. No, I know of no other article.

BY MR. MILLER.

Q. Is there or not to your knowledge any other product sold except the nut that was exhibited in evidence by you, under the name of kola, to your knowledge?

A. No, sir.

CROSS-EXAMINATION, BY MR. SIZER.

Q. Did you offer—or, you did offer some bottles of liquid here the other day, Doctor, with certain labels on them.

A. You mean those fluid extracts?

Q. Yes?

A. Yes.

Q. You offered those bottles in evidence, I believe.

A. Yes.

Mr. Sizer: That is all.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. What is the difference between that and the coca itself?

A. The coca is what we know as the crude drug, and the fluid extract is the solution of this drug in alcohol and water, made up so that it can be administered medicinally.

(Witness excused.)

DR. H. H. RUSBY,

previously sworn, was recalled for further

DIRECT EXAMINATION, BY MR. MILLER.

Q. Doctor Rusby, in the country from which this leaf of the coca plant or shrub is exported and where it is grown, I will get you to state whether or not anything else is exported under the name of coca except this leaf.

A. Nothing.

Q. About which you testified in chief.

Mr. Sizer: I recall distinctly that he asked this witness that question.

The Court: I think that this witness has been asked fully about that,—have you not, Doctor?

The Witness: I don't remember that the particular question—whether anything else is exported. He asked me whether it was exported under any other name, but not whether anything else was exported under this name.

BY MR. MILLER:

Q. I will ask you whether or not anything else is exported into this country under the name of coca except this leaf?

A. There is not.

Q. State what are the valuable constituents of the elements of value in this leaf and for which it is imported.

A. Cocaine.

Q. What is the effect of cocaine on the human system?

Mr. Sizer: May it please your Honor, that has all been gone into, I submit, on the original examination of this witness.

Mr. Miller: I do not think I asked him about it at all. If I did, I withdraw the question.

The Witness: No, your Honor; he asked me about the effect of caffeine on the system but not about cocaine.

The Court: Yes, I recall that. What is the materiality of that? If you prove that it is a constituent,—what is its materiality as to this?

Mr. Miller: I desire to show how it affected persons and if I show it has one effect and caffeine has a different

effect, I think that is certainly circumstantial proof of misbranding in this case.

The Court: You may proceed.

The Witness: Give me the question again, please.

BY MR. MILLER:

Q. What is the visible effect of cocaine on the human system?

A. Cocaine is, in the first place, a local anesthetic.

Q. What do you mean by that?

A. It destroys the sense of feeling in the part in which it is put. If you put in on the lip or tongue you will be unable to feel anything in a few minutes afterwards, for a minutes afterwards. If you put it on the eye, you will be unable afterwards to feel any pain in that eye, so that an operation can be performed on the eye without the patient being sensitive. On the system itself it has the effect of powerfully stimulating the intellect and the mortor muscles. A man is more inclined to be active, at least for a time, and his mind is more active and he is rendered wakeful. It takes away the feeling of weariness from the muscles.

Q. Is there or not anything else imported into this country under the name of kola, or the nut or the kernel, which was introduced in evidence as exhibit to Doctor Fuller's examination?

A. There is not.

(Witness excused.)

DOCTOR L. F. KEBLER,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Dr. Kebler, what is your age?

A. Forty-seven.

Q. What is your profession?

A. I am a chemist and physician.

Q. Where were you educated, Doctor?

A. In the University of Michigan; I graduated from the School of Pharmacy, Michigan, and the literary department in that school. I devoted my time chiefly to chemistry and allied sciences. I took some special courses in medicine in the Jefferson Medical College.

Q. Located where?

A. In Philadelphia, and am a graduate from the School of Medicine, George Washington University, at Washington, D. C.

Q. When did you attend school at the University of Michigan.

A. I entered the University in 1887 and continued for five years. I taught there one year.

Q. What branch did you teach in the University of Michigan?

A. Chemistry.

Q. And while you were attending the Jefferson Medical College, were you partially engaged in any other work? If so, what?

A. Yes, sir, after leaving the University of Michigan, I engaged with a firm at Philadelphia engaged in the manufacture and dealing in drug products.

Q. What is the name of that firm, please?

A. Smith, Blan, French & Company.

Q. What particular character of food products is that firm engaged in manufacturing?

A. While I was in their employ, they started into manufacturing the so-called infant foods, and at that time, and in so doing, it was necessary for us to make many examinations and experiments with food products.

Q. Were you, or not, engaged in the investigation and analysis of food products, and the constituents thereof, during the period of your connection with that firm?

A. I was, in part.

Q. And how long were you engaged with that firm?

A. A little over ten years.

Q. During this ten-year period, were you more or less engaged in this experimental work?

A. Yes, sir; experimental and analytical.

Q. And analytical?

A. Yes, sir.

Q. While attending the Jefferson Medical College, what courses were you taking there?

A. I took dissection and anatomy, and physiology, and I attended the lectures on therapeutics. I also attended many clinics in Philadelphia under Dr. Denver, John Deaver, of the German Hospital, and another hospital — I do not recall the name of it just now; it is an American Hospital.

Q. What do you mean by Clinics, Doctor?

A. That is to go to the lectures of the professors where they give actual demonstrations on human beings in connection with different diseases; for example, one day we would have typhoid cases and another day we would have

an operation for appendicitis, or the removal of a limb, or something of that character.

Q. State whether or not you are a registered practitioner of medicine in the District of Columbia?

A. I am.

Q. When did you sever your connection with this food manufacturer with whom you were engaged ten years in Philadelphia?

A. In March, 1903.

Q. And what position did you take then?

A. Chief of the Drug Division, Bureau of Chemistry, United States Department of Agriculture.

Q. How long have you held the position of Chief of the Drug Division?

A. About four years. The title was changed about four years ago from Chief of Drug Laboratory to that of Chief of Drug Division.

Q. Prior to this change, what was your title?

A. Chief of Drug Laboratory.

Q. And you took that position when you first went there?

A. Yes, sir.

Q. State whether or not you are a member of the American Medical Association.

A. I am.

Q. Have you any official connection with that Association?

A. I am a member of the Council on Pharmacy and Chemistry of that Association, a body that makes investigations of medicinal products and of medicinal foods, as we call them, for the purpose of informing the medical profession relative to the character of these commodities, and whether false and misleading claims and representations are made concerning same.

Q. State whether or not you are acquainted with the substance "C-O-L-A"?

A. I am.

Q. State what that substance consists of as it is bought and sold on the American market.

A. It consists of a crude drug of peculiar form, brownish in color, sometimes called a nut, cola nut.

Q. Are you or not acquainted with the substance coca?

A. I am.

Q. And what does that consist of?

A. A leaf—a crude drug, a leaf brought chiefly from South America, but sometimes from the island of Java.

Q. What is the active principle or ingredient of the coca?

A. Cocaine.

Q. For what is it commercially bought or sold and imported?

A. The leaf.

Q. Yes?

A. Well, it is probably imported largely for the manufacture of cocaine. Some of the coca leaves are also used in the manufacture of other medicinal products: The fluid extract of coca, for example.

Q. What is the difference between the coca in the crude state, that is, the leaf and the fluid extract?

A. The fluid extract is in liquid form, containing the active principles of the coca leaf.

Q. Have you ever known of anything else, any other drug, being bought or sold under the name c-o-c-a, except this product about which you have been speaking, in which cocaine is the chief active ingredient or principle?

A. No, sir.

Q. Have you ever known of anything else being bought or sold under the name kola by standard or reputable dealers of this nut or kernel which you have described?

A. Not a solid preparation, no, sir.

Q. Prior to the seizure in this case and while you were a member or while you were connected with the Bureau at Washington, I will get you to state whether or not you made any investigation or traveled over any section of the country with the view as to informing yourself as to the manufacture, sale and consumption of the product seized, namely, Coca-Cola.

A. I have.

Q. In what cities did you visit during that investigation?

A. Norfolk, Richmond, Jamestown, Atlanta ——

Q. (Interrupting.) Give those by states. Those first three were in Virginia?

A. Yes, sir; Atlanta, Georgia; Chattanooga, Tennessee; Montgomery, Alabama; New Orleans, Louisiana; Jackson, Mississippi; St. Louis, Missouri; Cincinnati, Ohio; Detroit, Michigan; Philadelphia, Pennsylvania; and New York.

Q. While in these various cities and passing through the sections adjacent thereto, state whether or not you were engaged in observation work as to the consumption and sale of Coca-Cola.

A. I was.

Q. State whether it was sold or dispensed indiscriminately, or how.

A. It was sold — it was dispensed to all comers at soda

fountains in all the cities that I have named.

Q. State whether or not there was any distinction as to class; that is, as to young, old, nervous or robust people?

A. No, sir, I saw no difference.

Q. State whether or not it was consumed by the classes that I have indicated.

A. Yes, sir; they consumed it freely.

Q. State whether or not that included school children and young persons of immature years.

A. I have seen children at the fountain drinking Coca-Cola, from four years old and upwards.

Q. Now, did you on the occasion of this trip of inspection visit the plant of the Coca-Cola Company, the claimant in this case, in Atlanta, Georgia?

A. I did.

Q. Did you there meet any official of the Coca-Cola Company, and, if so, who, and what was his title?

A. I met two of them at that time, Mr. Howard Candler, and the president of the Company, Mr. Asa Candler.

Q. What was Mr. Howard Candler's position at that time?

A. Manager, I was told.

Q. State whether or not you communicated to Mr. Howard Candler and to Mr. Asa Candler, the president, the object of your visit there.

A. He knew my mission, and of course I told them; and I told Howard Candler, but I did not tell Mr. Asa Candler because they knew in advance.

Q. State whether or not you were shown through the factory, from the basement to the top of the factory.

A. I was shown through the basement, the first floor and the second floor, in part; that is, the second floor in part.

Q. I will get you to state whether or not Mr. Asa Candler manifested pleasure or otherwise at your visit on that occasion.

A. Oh, he was very pleasant to me, but he was rather put out because of certain things that had developed in connection with Coca-Cola, because of the activity of certain departments of the Government, and he did not hesitate to say so.

Q. Now state the sanitary conditions existing at the time you were there and when you met Mr. Asa Candler and Mr. Howard Candler — you say they were informed as to your coming — state what features impressed themselves on you as being unsanitary.

Mr. Sizer: What was the date of the visit, as he gave it, Mr. Stenographer?

The Stenographer: He did not give it.
Mr. Sizer: I thought you had given it.
The Witness: No.

BY MR. MILLER:

Q. State what unsanitary features, if any there were, impressed themselves on you.

Mr. Sizer: I object to that, your Honor. It is not proper.

The Court: The objection is sustained.

BY MR. MILLER:

Q. State, Doctor, how the mixture of Coca-Cola was prepared, if you know and observed and were shown by Mr. Howard Candler during the course of that tour of the factory.

A. There was a kettle on one side of the building, the south side, and at the south side of that kettle — that is, the kettle was just away from the wall a little ways, and between the wall and the kettle, a copper kettle, steam-jacketed — there was a platform. The top of that kettle was either level or just below the surface of this platform. There was a stairway that led up to this platform which was used — that is, the platform was used for the purpose of dumping sugar, chiefly, into this kettle. The barrels were hoisted up on to this little platform, the head knocked out and the sugar dumped into the kettle.

Q. That mixture that was made in the kettle was what?

A. Was a syrup consisting of water and sugar. To this was then subsequently added caramel; that is, in this same kettle, or burnt sugar, as it is sometimes called.

Q. And what was then done with this syrup?

A. That is what I saw mixed together, and the sugar and the caramel. It was then heated to boiling, after which it was run out into a cooler. That is, the cooler was used when it was found necessary, when the demand was large, but when the demand was not large this cooler was not used. After passing through this cooler it was run into vats strung just below the floor on which the operations were conducted.

Q. In what room of the building was that that these vats were strung?

A. They were in the basement.

Q. And how near were they to this floor above?

A. Oh, I should say from six inches to a foot below the joists, as we say.

Q. What was the proximity to the street on the outside of the building?

A. They were arranged all around the building, all around the basement underneath the floor and were right up close to the sides of the building adjacent to the windows, not all of them were adjacent to the windows, but some of them.

Q. And when this cooling tank was not used, how was the mixture cooled?

A. Just by natural — just by time, natural evaporation and atmospheric conditions.

Q. After being run into these vats?

A. Yes, sir.

Q. Now, were there any connections with the outside between these vats that were suspended near to the windows?

A. The windows were open.

Q. They were open?

A. Yes, sir.

Q. Approximately what size were those windows?

A. Approximately one foot high and two feet wide.

Q. How were the windows — that is to say, when they were open?

A. I did not observe that point.

Q. Did I understand you to say they were open?

A. They were open. That is, those that I observed.

Q. Who was charged with the mixing of the sugar and the dumping of it into the kettle?

A. There were several negroes there that were doing the work. As far as I could see, no one had exclusive charge of any particular operation; but they took part as the work seemed to demand.

Q. Where did this negro stand, the one that did do the knocking out of the heads and the dumping into the kettle of the contents of the barrels?

A. He stood upon that platform opposite the barrel.

Q. In the course of your investigation there, did you observe any caffeine, and if so, in what form was it?

A. Yes, I observed caffeine there.

Q. Well, in what form?

A. In tin cans, crystalline, solid caffeine, the crystalline forms that always or usually come on the market.

Q. State whether or not it resembled the caffeine that has been exhibited here, a sample of which has been exhibited here, in connection with Mr. Fuller's evidence.

A. It looks like it. Of course, commercial caffeine varies some as to the manner of manufacture.

Q. In what quantities did you observe this caffeine present in that factory at that time?

A. I saw a number of tin cans, the exact number I could not say.

Q. Approximately what amount of caffeine would these cans contain?

A. To the best of my recollection they would hold about ten pounds.

Q. Did you or not observe any spider webs or anything of that kind in connection with your inspection there, near to these vats?

A. Oh, yes; the basement was quite commonly festooned with spider webs and things of that kind, and flies in the spider webs.

Q. How near were they to these vats that were suspended?

A. Oh, some of them overhung the vats. That is to say, they were attached part to the building and part to the vats.

Q. How close to the vats were these spider webs?

A. They were just overhanging some of them, and others were attached to parts of the building. They were all over.

Q. How close were those that were suspended over the vats from the vats themselves, from the tops of the vats?

A. They were practically over the vats.

Q. I understand — there might have been a hundred feet ——

A. Oh,—the lower part of the spider web was attached directly to the tank in which the Coca-Cola mixture was being cooled, within an inch or two inches.

EXAMINATION CONTINUED,

BY MR. MILLER:

Q. State how the negro help there in that building was clad on that occasion.

A. Oh, it was very poorly clad, the time I was there was in August and they had on virtually nothing but an undershirt and a pair of trousers, and shoes of course.

Q. State whether or not they were perspiring freely.

A. Oh, yes.

Q. Were you there or not afterwards, after this first visit to this factory, at a subsequent date and prior to the seizure in this case?

A. I was.

Q. Were you there also in connection with any one?

A. My wife was with me at that time.

Q. I mean, did she go to the factory?

A. She did.

Q. With you?

A. Yes, sir.

Q. State who you met there then as the representative of the Coca-Cola Company.

A. Mr. Howard Candler.

Q. I will ask you to state what was the condition of the steps that led down from the basement floor into — or, I mean, from the main first floor into the basement.

A. They were very filthy. They were covered with this sugar residue and dirt that accumulated in the factory. Of course, in operating a place of that kind the sugar and everything mixed sticks together and the men walk over the littered up floor and the sugar floor down in that basement, and it simply produces an accumulation of filth and dirt, several inches in places, and even the railing that was used to go down the stairway was covered with considerable of this filth and dirty material.

Q. State whether or not on this second occasion when you were there you observed any caffeine, and if so, in what kind of containers.

A. Yes, sir; there was caffeine there. If my recollection serves me correctly at that time there was a drum of caffeine there which had a slightly different appearance from the caffeine that is usually met with in commerce. It was more compact but not as white a product as the ordinary article produced. To the best of my recollection, one of these drums would hold approximately two hundred pounds.

Q. Did you or not open either of the drums, or was it opened in your presence so you could observe whether any of the contents had been removed?

A. I saw the drum open — I don't remember whether it was opened in my presence, actually opened, but the lid was tilted off and it was open, and I saw the drum's contents.

Q. State whether or not the contents of this 200-pound drum, any portion of it had been removed.

A. It was not full.

Q. Do you remember whether or not there was more than one of the drums there at that time?

A. I don't recollect more than one.

Q. And where was that with respect to this kettle?

A. It was directly north of the kettle about, say twenty feet.

Q. Now, were you or not there also just before the seizure in this case was made?

A. I was.

Q. On what date?

A. The 20th of October, if I recollect correctly.

Q. Of 1909?

A. Yes, sir.

Q. Who, if any one, went there with you on that occasion?

A. Mr. Lynch, Inspector Lynch.

Q. Is that the witness J. L. Lynch who has testified here?

A. Yes, sir.

Q. And where did Mr. Lynch go to from there?

A. Well, he started for Bristol.

Q. At that time state whether or not you observed any caffeine in the factory, and if so, in what form.

A. I observed some drums with the caffeine in them. At that time I took a sample of the caffeine.

Q. You took a sample of the caffeine?

A. Yes, sir.

Q. Was it caffeine?

A. Yes, sir.

Q. State what kind of barrels were used for the barreling of the Coca-Cola mixture.

A. Well, they used some new barrels; they used second-hand barrels, whisky barrels and alcohol barrels. The kegs, I think, were mostly new; at least, I don't remember seeing any old ones.

Q. What was done with these second-hand barrels, such as the alcohol barrels and whisky barrels, if you saw them being prepared for use?

A. They had a number of these second-hand barrels in the basement, and the workmen there took these barrels, I saw them do it, and painted them red. Before doing so, however — I will not state that positively, whether it was before or after, but they placed them over a pipe and run steam through them for a few minutes, the one I observed or the only observation I made was about three minutes.

Q. I will get you to state whether or not any tag or label or pictorial design was then put on the barrels.

A. A design or label of the kind on this keg here (indicating keg in court room) was put on the barrels before shipping, not in that cellar, however—at least, I saw none applied down there in the cooperage.

Q. Now, I present to you with a purported duplicate or reproduction of the Coca-Cola trademark and will ask you whether or not that character of design was placed on these barrels before they were supplied with the Coca-Cola and sent out.

A. Yes, sir; that really looks like it.

Q. I will get you to file that as Exhibit No. 1 to your testimony.

A. I will do so.

Q. Now, I will get you to state whether on these three occasions when you were there in the factory you observed whether or not the help there, including the negroes, were chewers of tobacco.

A. Yes, sir; I observed some of the help expectorating an amber fluid.

Q. I will get you to state whether or not there were any cuspidors or spittoons provided, and if not, where they expectorated.

A. I saw no cuspidors; the whole building appeared to be a cuspidor.

Q. Where did they spit?

A. They spat on the floor, sometimes on the platform; any place they happened to be.

Q. Now, state whether or not, clad as those employes were, there would necessarily in the operation of the work be given off from their bodies any germs.

Mr. Sizer: I object to that.

The Court: On what ground, Mr. Sizer?

Mr. Sizer: I think it is a mere question of opinion. He has stated the surroundings, he does not undertake to testify how many germs were actually given off but to express an opinion whether or not ——

The Court: (Interrupting) Have you ever made any study of that question about germs?

The Witness: Yes, but not in this particular case.

The Court: Have you made a study of that particular question?

The Witness: Yes, sir; I have studied bacteriology.

The Court: Then the exception will be overruled.

Mr. Sizer: We desire to reserve an exception.

The Witness: The perspiration would fall off the bodies and foreheads and they would wipe their foreheads and their faces with their hands and it is a well recognized fact that everything they touched, anything that comes from the body, contains more or less germ material.

MR. MILLER:

Q. And as they would wipe the perspiration from their foreheads, these employes, what became of it, what did they do with it?

A. They just simply — it is usually done, with workmen of that type — simply wiped it off and let it go wherever it would. Some of it, of course, would go on the floor or whatever operation they were at.

Q. How were the closets, if any there were in the building, ventilated, from the inside of the building or outside?

A. They were ventilated into the building.

Q. Into the building?

A. Yes, sir.

Q. Now, did you see the exhibit or the contents that were contained on the paper that was used for filtering a portion of the contents of one keg that was seized as a part of this mixture, that was seized in this case, the subject of this libel?

A. Yes, sir.

Q. As it was presented by Doctor Fuller?

A. Yes, sir.

Q. State whether or not in the ordinary conduct of the business as you saw it on that occasion — I mean, in your three visits and each and all of them to this factory—there was or likely would have been contained in this mixture germs of various kinds that resulted from the operations as they were conducted.

Mr. Sizer: Now, we object to that question.

Mr. Miller: And I will add to it ——

Q. (Continuing) If so, state why.

Mr. Sizer: He has stated the surroundings there and has given his opinion as to the existence of germs and this is a mere matter of opinion and inference as to whether this product contained any germs.

Mr. Miller: I submit that is a matter of technical and scientific knowledge. He said he observed the conditions and he knows as to bacteriology, and I think it is a proper question.

The Court: Have you made a study of the locomotive qualities of germs of that character, that fly around?

The Witness: Yes, sir, I have made these observations to a considerable extent, I can't qualify as a bacteriologist in general but I know very well that the germs are carried by ——

The Court: (Interrupting) I didn't ask you what you know. Have you made any special study so as to qualify you to express a scientific opinion as to that matter?

The Witness: Yes, sir.

The Court: How much study have you had?

The Witness: I have examined material that would float around in a room with a view of finding out how many bacilli were in the room.

The Court: And how far they would fly?

The Witness: I don't know as I could answer that question, how far they would fly.

The Court: You never made any study as to the spread-

2713

ing qualities of the germs?

The Witness: It depends entirely upon the temperature and the wind ——

The Court: I didn't ask you that. You never made any study as to the spreading of germs?

The Witness: No, sir.

The Court: Then the answer is excluded.

Mr. Miller: Kindly note an exception.

The Court: On the ground that this witness is not qualified as an expert.

BY MR. MILLER:

Q. How many employes engaged in the basement of the building and on the first floor, where there was this mixing of the original mixture and the cooling of the Coca-Cola syrup, were young boys?

A. There were quite a number there, I don't remember the exact number. Mr. Candler told me that they employed about five negroes and eight white men.

Q. Altogether?

A. Yes, sir.

Q. State whether or not they were continually passing around near to this kettle and these cooling tanks, Doctor.

A. Those on the first floor were, yes.

Q. And how about the basement floor where the cooling tanks were?

A. Well, of course they filled the barrels down there with Coca-Cola syrup, the same individuals — and others — I might say that the basement was kept in a moist condition and the situation down there, I think, was very much better than it was on the first floor.

Q. Now, in the preparation of these barrels, state whether or not in your opinion they were properly sterilized, and if not, state why.

Mr. Sizer: I object to that, your Honor, he has not qualified as a bacteriologist.

The Court: The objection is sustained.

BY MR. MILLER:

Q. Are you prepared to express an opinion upon that subject, and if so, give us your qualifications in that behalf, Doctor?

A. The general conditions in which ——

Q. (Interrupting) I first asked you to state whether or not you are prepared to express an opinion as to whether or not the barrels were properly sterilized, and if you say that you are not that ends it, and if you say you are then please tell us the course of study or investigations you have

made with the view of preparing yourself to give an opinion on that point or to express an opinion as to that.

A. I would hardly consider myself a bacteriologist sufficiently — I don't believe I have made investigations far enough in that direction to warrant me in making a definite statement.

The Court: Then the objection is sustained.

BY MR. MILLER:

Q. What is the color of this Merchandise No. 5 that was used as an ingredient in making up the Coca-Cola mixture?

A. The caramel? Oh, Merchandise No. 5?

Q. Yes.

A. Mr. Candler told me ——

Mr. Sizer: I object to that.

BY MR. MILLER:

Q. Have you seen Merchandise No. 5?

A. I have.

Q. I just asked you to state what the color of Merchandise No. 5 is.

A. Oh,—it is straw or a light amber color.

Q. State whether or not the addition of the caramel to that mixture colors it in any way, and if so, in what respect.

A. Yes, it increases the color very materially, from that light amber or straw color to a dark amber.

Q. Now, assuimng that there is contained in a keg of this mixture insects or remnants of insects that were produced here by Doctor Fuller and which you say you saw, and assuming it was contained in a 10-gallon keg, I will ask you to state whether or not the presence of such insect life, whether living or dead, for that matter, would damage or render that product inferior.

Mr. Sizer: I object to that, that is not a question of scientific or expert testimony.

The Court: If this witness saw two kegs, one with and one without, he can describe the difference. If he did not see anything but merely is expressing his general opinion, the jury would be as competent to pass on that and the exception is sustained unless he shows he saw both.

Mr. Miller: That is Doctor — your Honor, I did not ask him as to caramel and the water, I was asking him whether or not the presence of the insect life in this mixture rendered it deleterious or made it inferior as an article as compared with one in which insect life did not exist; that is my question.

The Court: I did not catch your question.

Mr. Sizer: I say, your Honor, that is not a question of expert medical knowledge; it is a question of fact.

Mr. Miller: I submit that is all it can be.

The Court: I will allow the question to be asked. You may ask one witness on that question.

Mr. Sizer: We note an exception.

BY MR. MILLER:

Q. State how that is, Doctor, whether or not the presence of the insects that were exhibited here and the insect life in its original state and after it was killed as shown by that exhibit of Doctor Fuller's in the keg of this product — was, as compared with the product with that in it, inferior or damaged for the purpose of consumption.

A. I would consider it an inferior product, unwholesome, containing foreign and decomposed animal matter.

Q. State whether or not the addition of caramel to this product would conceal or prevent detection by the sense of sight of persons of the insect or animal life that would exist in the kegs, the animal life — bees or flies or whatever they were that were in the mixture.

Mr. Sizer: Now, I object to that.

The Court: Unless the witness saw the Coca-Cola syrup and then saw some of the caramel and he saw the difference, he could not state.

The Witness: Yes, I saw the syrup before the caramel was added into it afterwards, and I saw the syrup after the caramel was added.

The Court: You may state what its effect would be.

The Witness: By careful observation it might be possible to detect the bug or fly or whatever it was in a mixture of that character, but the other ingredients it would be simply impossible for any one to observe, hardly.

BY MR. MILLER:

Q. What is the effect of adding a caramel mixture to the mixture before it is added, as to color?

A. It makes the transmission of light more difficult, it makes it more difficult for any one to see through it, the syrup is perfectly clear and transparent, whereas when the caramel is added, it colors the product gradually darker and makes it impossible to observe these materials in this mixture after they were broken up into the small particles as they were shown here by Doctor Fuller.

Q. State whether or not that matter of observation would become more difficult as they would decompose and break up.

A. It would become more difficult.

Q. Have you ever taken any Coca-Cola yourself?

A. Yes, sir.

Q. What is the effect of caffeine on the human system when taken into the system, Doctor?

A. Well, it has a diuretic effect on the kidneys, increases the heart action, but the chief action is upon the brain, causing wakefulness, increasing activity, etc.

Q. Have you ever used or consumed any Coca-Cola yourself?

A. Yes, sir.

Q. What is the effect of the Coca-Cola preparation as taken by you?

A. Well, if I would take it in the evening or late afternoon it keeps me awake. It prevents sleep.

Q. How do you account for that?

A. By the action of the caffeine.

Q. I say, how do you account for that? What is the casual property?

A. The caffeine stimulates the activity of the brain and makes it impossible for any one to go to sleep until that stimulation is worn off entirely by the body.

Q. I will get you to state, first, whether at the time you were in Atlanta and just prior to this seizure and about that time, through this section of country that you have stated you visited, you observed Coca-Cola was sold at times during the day at fountains and dispensed there.

A. It was sold at all times.

Q. Was it or not sold in the evening and after supper the same as during the forenoon?

A. It was sold all day, and in some places all night.

Q. State whether or not you observed any users of Coca-Cola that were frequent or apparently addicted to the use of it, particularly in the city of Atlanta? Have you had anything of that kind come under your observation; has it impressed itself on you in that respect?

Mr. Sizer: I object to that question, "apparently addicted to the use of it," and submit it is not a proper question as to what he observed as to the effect of the use of it.

Mr. Miller: He has given the effect and I am now asking as to the apparent addiction and what evidences, if any, there were.

The Court: The exception is sustained as long as it calls for the mere appearance and asking if he knows of any cases ——

BY MR. MILLER:

Q. Did you observe any instances where a party or par-

ties were addicted to the use of it, or frequent consumers of it?

A. I have watched soda fountains for hours at a time, and I have seen some pale faces appear repeatedly during that time. I say repeatedly, but a number of times during that time, and I have also seen some of them drinking two and sometimes three glasses of Coca-Cola at one sitting of five or ten minutes.

Q. These persons that would come in, state what they called for when they came in to be served.

A. Well, they called for a product under different names.

Mr. Sizer: I object to that. He is asking him as to what some people call for that went up to a soda fountain. The question is incompetent.

Mr. Miller: I am speaking of consumers of Coca-Cola, that is what I am speaking about.

BY MR. MILLER:

Q. Now, I am speaking of consumers of Coca-Cola and I will ask you whether or not these people that you have observed as they came there called for Coca-Cola by the popular name under which it is sold.

Mr. Sizer: I object to that. The question is now as to whether or not it was sold under a peculiar name and the fact that this witness might go to soda fountains with which the company is not connected and buy it under some sort of a slang name or a different name I submit is entirely immaterial and irrelevant in this case.

The Court: It might throw some light on it.

Mr. Sizer: We reserve an exception.

The Witness: Some consumers would ask for Coca-Cola, and others for "coke," and some called for the article under the name of "dope."

BY MR. MILLER:

Q. That is not what I was trying to get at. I was trying to ascertain whether or not these people you saw drinking there took this same product Coca-Cola ——

Mr. Sizer: I want to object to the answer of the witness made to the last question on the ground that the fact that people may have called for Coca-Cola at stands or fountains which this company had no connection with whatever, called for Coca-Cola under the name of "coke" or "dope" is entirely irrelevant and immaterial in this cause.

The Court: I understood the exception and overruled it.

Mr. Sizer: I desire to note an exception.

BY MR. MILLER:

Q. These people that appeared periodically as you say and called for the drink under whatever name, state whether or not they received a drink of this same coloring as Coca-Cola.

A. They did.

Q. I will get you to state what the relative quality or dose of the syrup that was ——

Mr. Sizer: (Interrupting) I object to that last question and the answer; the question was whether or not they received a substance of the same coloring as Coca-Cola There may be a thousand things that have the same coloring.

The Court: That may be a circumstance showing it was the same.

Mr. Sizer: I submit if one man goes in and calls for Coca-Cola and he gets a glass of a substance and another man calls for it and he gets something of the same color, that is not competent evidence that they are the same.

The Court: I think it is a circumstance.

Mr. Sizer: We desire to note an exception.

The Court: I believe I will change my ruling on that. That may be prejudicial unless this witness is qualified — to show that it is the same color is carrying us into it very far. I exclude the answer, that when these people call for these other substances they get an article of the same color.

BY MR. MILLER:

Q. I will get you to state under what name this product Coca-Cola is popularly and generally known and sold in the city of Atlanta where it is manufactured, and throughout these cities that you say you visited from time to time, and dispensed.

A. I think the general name is Coca-Cola.

Q. That is the general name?

A. Yes, sir.

Q. Now, I ask you under what name or whether or not it is a fact that it is frequently and popularly called for under another name.

Mr. Sizer: I object to that.

The Witness: Oh, yes, sir.

BY MR. MILLER:

Q. Is it or not?

Mr. Sizer: (Interrupting) Wait a minute — he stated it was generally known by the name of Coca-Cola.

Mr. Miller: I have not asked him for the other names as yet, Mr. Sizer:

Mr. Sizer: This is his own witness.

The Court: While not generally known under another name, whether it is frequently known under another name; you can ask him that.

BY MR. MILLER:

Q. I ask you whether or not it is frequently and indiscriminately called for and dispensed under any other name in the city of Atlanta and elsewhere?

Mr. Sizer: We object to that. We object to the form of the question.

The Court: The question is leading and is objectionable.

BY MR. MILLER:

Q. State whether or not this drink is sold and dispensed indiscriminately under any other name than that of Coca-Cola.

Mr. Sizer: I object to that.

The Court: Mr. Miller, ask him if it is sold and dispensed under any other name, and if so, to what extent.

Mr. Miller: I thank your Honor for the suggestion.

BY MR. MILLER:

Q. Is this drink sold or dispensed and was it at the time of this seizure, in the city of Atlanta, Georgia, and elsewhere under any other name than that of Coca-Cola, and if so, to what extent?

Mr. Sizer: We want to reserve our objection to that question and to the answer unless they show it was sold by the Coca-Cola Company under some other name.

The Court: The exception is overruled and the witness may answer the question.

The Witness: It is sold and called for under the name of "dope" and "coke." I have heard these names applied in Atlanta, Chattanooga, Birmingham, New Orleans, Montgomery, Philadelphia, Washington, D. C., Chicago, St. Louis, and other places.

BY MR. MILLER:

Q. Now, coming back to the users of this again. I will get you to state whether or not there was any marked case of habituation that came to your attention in the city of Atlanta and while you were stopping at the Piedmont Hotel, and if so, what you observed there.

A. Well, I observed one of the telephone operators there ——

Q. A lady or a gentleman?

A. A lady

Q. Well, go ahead.

A. And I was attracted to her having brought in a Coca-Cola in the morning, before noon, at noon, after noon and evening for several days.

Q. State what was the apparent quantity of this mixture that was served to customers and whether or not there was in the city of Atlanta at and prior to this seizure any method of measuring exactly the quantity that was served, as it was generally and popularly dispensed.

Mr. Sizer: I object to the use of the word "apparent" in that question.

The Court: I suppose he used that in the sense of "visible."

Mr. Miller: Yes. I am speaking only of what was apparent, what you saw. Tell what you observed.

The Witness: You mean the syrup?

Mr. Miller: Yes, the Coca-Cola syrup.

The Witness: Well, it would vary. The glasses used were different, different in size at different places, but by observing the same sized glass used for different customers it was observed that varying quantities of this syrup were used.

BY MR. MILLER:

Q. You say that varying quantities were used?

A. Yes, sir; in some cases a smaller and in other cases a larger. There were at some,—in one or two places I saw a glass used marked by the Coca-Cola Company which had on it — that mark was usually little observed. The syrup usually employed was much more than that, some twice the volume indicated by that mark and probably in some cases — and the amount varied from one to two, and I have actually seen measured two and one-half ounces.

Q. Where a customer merely called for a glass of Coca-Cola?

A. I don't know whether it would be just merely Coca-Cola,—he would call for.

Q. Well ——

Mr. Sizer: Just let him answer that question.

A. (Continuing) They would probably ask for "coke strong," or "dope."

Q. That is just what I didn't want to get into.

A. And Coca-Cola — an individual who was known to the dealer, and he would give him a larger quantity from his knowledge of his demand.

The Court: What would you say from your observation would be the average amount served in a glass to a transient consumer?

The Witness: An ounce and a half.

BY THE COURT:

Q. In how much other fluid would that be contained?

A. About, all told, between seven and eight ounces.

Q. You say an average glass at the soda fountain contains seven to eight ounces and an ounce and a half of Coca-Cola syrup?

A. Yes, sir; the remaining part is carbonated water.

Q. And this carbonated water was usually served cold or warm, tepid or what?

A. It is usually served cold, but it is also now served hot. I have purchased it hot.

Q. Doctor, when "Coca-Cola" or "coke" or "dope" — as the case may be, was called for, state whether or not the syrup that was emitted into the glass was taken from the same pump, or emitted therefrom.

A. Yes, the same material was served when the three different names were called for; that is, out of the same faucet or pump.

Q. How does the dispenser emit that into the glass customarily?

A. Either by pressure or by a lever pulling it out; there are several ways of doing it.

Q. Well, tell us whether or not there is one automatic — I mean, one push at this automatic contrivance or one pump stroke or how is that?

A. In some cases there is one stroke and in other cases two and three, depending sometimes on the working of the pump, or the man or the liquid desired.

Q. Now, Dr. Kebler, I will get you to state whether or not you are qualified to speak as to whether caffeine is a poison and if you have made any studies in that respect.

A. I have made some study in that respect.

Q. Is it or not a drug?

A. I consider it a drug.

Mr. Sizer: I do not think the witness has qualified yet as an expert on toxicology and I object to that.

BY MR. MILLER:

Q. I will ask you if you are a toxicologist or if you have studied toxicology, and to what extent.

A. I have studied toxicology for the last twenty years. I have handled toxins and tested for same, identified same, and have read the vast majority of books in English on toxicology and some foreign toxicologies, German and French. That is constantly my business to identify these

things and particularly in dispensary remedies and medicinal agents.

Q. State whether or not you are in your opinion qualified to speak as a proper toxicologist with respect to caffeine.

A. I consider myself qualified.

Mr. Miller: I submit the witness is competent.

The Court: Proceed.

BY MR. MILLER:

Q. State whether or not caffeine is a drug.

A. Yes, I consider it a drug.

Q. Is it or not a poisonous drug, or has it a poisonous tendency?

A. I consider it a poisonous drug.

Mr. Sizer: I object to that form of the question — is it a poison or has it a poisonous tendency — you ought to ask him one or the other and not in the alternative.

The Court: Yes.

BY MR. MILLER:

Q. I will ask you in conformity to counsel's suggestion, whether caffeine is a poison.

A. Yes, I consider it has a poisonous tendency.

Q. Has it a poisonous tendency or not?

A. It has.

Mr. Miller: Take the witness.

CROSS-EXAMINATION,

BY MR. SIZER:

Q. I will ask you to kindly state again the dates of the visits you say you made to the factory of the Coca-Cola Company at Atlanta, Georgia.

A. August, 1907; September, 1908, and October, 1909.

Q. And, the first visit was the one in which you made a thorough inspection, as you have testified to.

A. Fairly thorough.

Q. On that visit Mr. Howard Candler went through the factory with you?

A. Yes, he did.

Q. Did he also go with you on each of the subsequent visits?

A. He did the second one, and the third one in part.

Q. On the first visit you had ascertained all these facts that you have testified about — that is, the conditions under which the Coca-Cola was made and the syrup and everything of that sort?

A. Yes, sir.

Q. And on the second visit you went down there you took your wife and took her to the factory?

A. Yes, sir, I did.

Q. You just took her down there to give her a little pleasant recreation?

Mr. Miller: Now, I object to that.

The Court: The exception is overruled.

BY MR. SIZER:

Q. That is a fact, is it?

A. Well, she is as much interested in this work as I am and I wanted her to see the conditions in that factory.

Q. On the third visit also Mr. Candler went through the factory with you?

A. In part.

Q. Which part of the inspection did Mr. Candler accompany you in?

A. The latter part.

Q. The latter part?

A. Yes, sir.

Q. Who was it in the first part?

A. You mean during that visit?

Q. Yes.

A. Why, Mr. Lynch.

Q. That is the visit on which you and Mr. Lynch went down there together?

A. Yes, sir.

Q. And when you went down on that occasion you didn't follow the custom that you had followed on previous occasions of first calling on the manager and going through the factory with him?

A. Yes, sir, I followed the same custom.

Q. Is it a fact, Doctor, that you did not call on Mr. Candler at all when you first went there?

A. I didn't the first time.

Q. You didn't the first time?

A. No, sir.

Q. I thought you said you went and saw Mr. Candler and told him your business before you went through the factory.

A. I found where the product was made and I went to a door and went in, went inside and met Mr. Candler.

Q. I am talking about the first visit.

A. Yes, sir.

Q. Is it a fact that when you went there the first time you called for the manager and told him your business and he went through with you?

A. It might have been, I don't remember the details.

Q. Do you remember Mr. Candler being with you on that entire visit the first time?

A. Yes, sir.

Q. And on the second visit you also informed Mr. Candler of the purpose of your visit and he went through the factory with you and your wife?

A. Pursued the same way I did the first time.

Q. And the third time you and Mr. Lynch went there and without saying anything to Mr. Candler, undertook to make an inspection of that plant?

A. We proceeded as we did formerly.

Q. Is it a fact, Doctor Kebler, and have you not so stated that you did not notify Mr. Candler the third time and he did not go with him?

A. We did not notify him on the second visit.

Q. On the second visit he came and went through the factory with you?

A. Yes, sir.

Q. He came and went through the factory with you?

A. Yes, sir.

Q. He went through the factory with you?

A. Yes, sir.

Q. Where did he meet you the second time?

A. He met us somewhere — I don't know just where, I could not answer just where, but he met us.

Q. And before you made an inspection, didn't he, or any part of the inspection on the second trip?

A. Yes, sir, I think he was with us during the entire trip.

Q. How much of the inspection had you and Mr. Lynch completed on the third trip before you saw Mr. Candler?

A. I would not be able to answer that definitely. We were in there a little while and Mr. Candler came. It was early in the morning and we went down there rather early because we were there in court and when we arrived at the place the door was open and we walked in as was our custom, and some of the employes were there and they knew us from former visits, and we proceeded the same as we had been doing on former occasions.

Q. Did you go in the same way on the third visit?

A. Yes, sir.

Q. In through the same door?

A. Yes, sir; as far as I know it was the same door that was there.

Q. Did you go into that main entrance door leading to the first floor on all three of these visits?

A. Yes, sir.

Q. You went through that?
A. Yes, sir.
Q. And who was it that met you on the occasion of your first visit when you went in?
A. Mr. Howard Candler.
Q. Who met you on the second visit when you first went in?
A. Mr. Howard Candler.
Q. Who met you on the third visit when you first went in?
A. Why, I don't know who it was; some workman there.
Q. The fact is you didn't tell your business to any one on that third visit?
A. I didn't tell my business at any time excepting at the first.
Q. Well, you told Mr. Candler when he met you on the second visit.
A. Well, I don't know that I did.
Q. On your third visit you didn't tell any one what you came there for?
A. Tell any one?
Q. Yes, did you tell any one?
A. No, sir, not particularly.
Q. Did you ask that employe to tell Mr. Candler you had come down to make another inspection of the factory?
A. I don't think we did.
Q. Now, the fact is that you had gone nearly through this entire factory on that third visit before Mr. Candler came along at all?
A. It may be possible; I don't remember that point.
Q. You don't remember how much of the visit you had completed before he came?
A. No, sir.
Q. Where were you when you first saw Mr. Candler?
A. I could not say definitely.
Q. Were you up on the stringers next to the ceiling of the basement looking into the tanks?
A. I never was on any stringers.
Q. You were on that beam that supports the tanks up next to the ceiling?
A. I never was on one of those stringers or beams.
Q. Where were you then?
A. I think we were propably on the stairway looking, or looking into the tanks in which the Coca-Cola syrup was being cooled.
Q. That is the tank down in the basement?
A. No, the two tanks—well, the tanks in the basement

suspended from the floor.

Q. They are suspended from stringers or beams that run across under the floor; is that it?

A. Yes, sir.

Q. And these tanks are how close to the ceiling?

A. Well, from six inches to a foot; I am not positive about that.

Q. You mean from the ceiling or from the stringers from which they were suspended?

A. Yes, sir; what we call the joists.

Q. How far was that joist from the ceiling?

A. Well, if I remember correctly, the joists there were probably ten inches—maybe they were a foot; I don't know, I didn't measure these joists.

Q. How far is that staircase from the tank that you were trying to see into?

A. I could not say definitely, but not very far away; we could see into a number of them from where that stair was.

Q. You could not see in all of them from the stairway?

A. No, sir.

Q. And how did you see into the others?

A. We didn't see into all of them.

Q. Didn't you get up on the stringers that go across and look into the others?

A. No, sir.

Q. Did Mr. Lynch do that?

A. I didn't see him.

Q. Well, you were with him all the time you were making that inspection?

A. Yes, sir.

Q. So it is you are not able to say now whether you saw into only two of these tanks?

A. I saw into three or four or five.

Q. How many were there altogether?

A. I didn't count them.

Q. Well, give us your best idea as to how many of those Coca-Cola tanks there were.

A. It would be simply guessing; I might see a thousand.

Q. Well, do you think a thousand?

A. No, sir; I say I would be just guessing.

Q. That is as near as you could guess at it?

A. I said it would be just a guess.

Q. Well, could you not, having been there on three separate visits and inspected that factory, possibly give us some approximate idea?

A. Probably ten or twelve.

Q. Doctor Kebler, the original information in this case

was prepared and sued out on the information given to the district attorney by you and Mr. Lynch, was it not?

A. Not by me.

Q. Well, the course pursued was this: that you gave the information to the secretary and then the secretary communicated it to the Department; is that correct?

Mr. Miller: I object to that; that is immaterial. I can conceive of no reason how that would become competent.

Mr. Sizer: I think I will show your Honor—the reason is this—I want to ask him if he is the man on whose information the allegations in the libel were based.

The Court: You can show who he gave his information to, but he would not know further than that, except from hearsay.

BY MR. SIZER.

Q. To whom did you communicate the facts that you discovered on the three inspections of the plant?

A. To Dr. Wiley, the chief of the Bureau of Chemistry.

Q. And you know that following that, the original libel was filed in this case?

A. No, it was not filed following that; I made a report of conditions in 1907 and 1909, and at a number of times but the exact date or time that Doctor Wiley communicated this information to other parties I do not know.

Q. Well, you communicated to the proper official all the information you had gained on these three tours, didn't you?

A. All that I considered material; yes, sir.

Q. You saw the original libel before it was filed?

A. No, sir; not to my knowledge.

Mr. Miller: You say it was communicated, Doctor Kebler. I want to ask whether or not that communication was in writing?

The Witness: I do not think so; we talked the matter over. It is not in writing.

BY MR. SIZER.

Q. You knew the contents of the original libel, didn't you?

A. I did not.

Q. You never saw a copy of it at any time?

A. Not previous to the seizure; no, sir.

Q. How soon after the seizure did you see a copy of it?

A. Maybe a month or two.

Q. Well, you were aware of the fact that the original libel was amended on several occasions?

A. Well, simply from hearsay.

Q. You heard it?

A. Yes, sir.

Q. And you saw the amendments to the libel, didn't you?

A. Well, I probably did.

Q. And you knew the fact, Doctor Kebler, that it was not until a month or two ago after that original libel had been amended on three or four different occasions that any allegation was made by the Government in respect to the condition of the manufacture of this product?

A. I don't know anything about it.

Q. You saw the last amendment, didn't you?

A. I saw it when I read it here, yes, sir.

Q. You know that was filed but a month ago, don't you?

A. I don't know.

Mr. Miller: That is a matter of record here, and what this witness may know or not on this point is immaterial.

Mr. Sizer: I want to show he knew the allegation of the original libel and the different amendments and I want to show he knew the facts that the amendments were recently made on, and that they were not put in until about a month ago.

Mr. Miller: That is immaterial. He is not charged with enforcing the law. He can't enforce a law, he is only an employe of the Government. I submit, your Honor, that it is incompetent and irrelevant for any purpose.

Mr. Sizer: We think we have the right to ask him, to show on whose information the libel was predicated, and the amendments also.

The Court: If he had signed the libel or verified it, I think the question would be competent, but as he did not I do not think it is competent and I will sustain the exception.

BY MR. SIZER.

Q. Now, Doctor Kebler, what experience have you had as a practicing physician—any?

A. No, sir, except what we get ordinarily—I have been in this business for a goodly number of years, studying medicines off and on as my time would permit, and my funds would avail, and I have watched these things for many years; I have had considerable practice and been thrown in contact with the effects of medicines. I have taken a medical course and am a registered practitioner, but do not practice medicine for a living, but I do prescribe occasionally for individuals gratis.

Q. You have never been a medical practitioner?

A. No, not in the generally accepted meaning of the term, no.

Q. As a chemist, what practical experience have you had?

A. I have analyzed a goodly number of medicinal products; while I was connected with the firm I referred to in Philadelphia I had charge of the analyses of medicines purchased and delivered to the laboratory for examination. At that time we examined, the first year, I would say not less than 1,000 different samples, the second year probably 1,500, and we increased the last year; I think we examined in the neighborhood of 1,200 different samples, and since then I have examined probably as many samples or had them examined under my supervision.

The first year I was with the Bureau of Chemistry I did all the work myself and made all the examinations and made the examinations of all the chemical re-agents that were supplied to the Bureau of Chemistry, and I have examined hundreds of proprietary shipments.

Q. How long were you connected with that Philadelphia house that you referred to?

A. I stated about ten years.

Q. You commenced in 1893, then?

A. I think I began in June or July of 1892.

Q. Of 1892?

A. Yes, sir.

Q. And in 1903 you went with the Government?

A. Yes, sir; in March of 1903.

Q. And you have been since and are now in the service of the Government?

A. I am.

Q. What do you say now your duties were in connection with that Philadelphia house—you say among other things that you analyzed drugs that came in there?

A. Yes, sir.

Q. What other duties?

A. I had general supervision of the analytical work, the manufacturing and experimental operations carried on there.

Q. Is that all now?

A. Well, that covers a great deal.

Q. Now, I didn't ask you whether that covered a great deal or not, but I asked you as to whether or not that was all.

A. I can give it in detail.

Q. Well, I do not want the details; just answer the question. I do not want it in detail, but I want to know if that covers it all.

A. I said that I could give it in detail.

The Court: Just answer the question.

BY MR. SIZER.

Q. That was all, was it?

A. Yes, sir.

Q. How long did you say you were in the hospital work, Doctor?

A. I had no definite time which I served in the hospital, but during the last two years of my medical work, we were in the hospital a good deal.

Q. That was while you were attending medical lectures?

A. Yes, sir.

Q. While you were a medical student?

A. Yes, sir.

Q. During what period of time did you say, what years?

A. The year of 1894, the year of 1896, and I have been in hospitals off and on to a certain extent, since that time, tubercular hospitals, not as an interne, but simply as an observer of conditions.

Q. Now I want to ask you, Doctor, when it was that you first made the acquaintance of the substance that you speak of as cola, namely, the kernels of the nuts that came out of the cola tree?

A. I could not give the exact date; probably 1894.

Q. While you were in the employ of this Philadelphia concern?

A. Yes, sir.

Q. That name is very frequently spelled "k-o-l-a"?

A. It is.

Q. And it is recognized as the fruit of a tree that grows in Africa called the kola tree, is it not?

A. I don't know what it is called in Africa.

Q. Isn't the word "kola" defined in the English dictionaries and encyclopedias as a tree that grows in South Africa?

A. It may be, I have not looked those things up.

Q. You know that name does indicate a tree particularly, do you not?

A. No, I don't know it.

Q. You don't know whether it does or not?

A. No, sir, I have never seen it.

Q. The name is spelled "Kola" and frequently "Cola"?

A. Possibly.

Q. Now, when did you make the acquaintance of "Coca," about the same time?

A. Yes sir.

Q. The word "Coca" was applied primarily to a South

American shrub, was it?

A. That I do not know.

Q. Don't the directionaries define the word "Coca" as a South American shrub, the scientific name of which is Arythroxylon Coca?

A. I must say I never looked up those definitions.

Q. Neither did you look them up in the encyclopedias?

A. No, sir.

Q. And you are not prepared to say whether the name "Coca" is the particular name of a shrub or not?

A. No, sir.

Q. Do you claim to be an expert pharmacist, Doctor?

A. I think I have a fairly good knowledge of pharmacy.

Q. You acquired that knowledge during this experience that you had with this Philadelphia firm?

A. Yes, sir.

Q. Now, when did you first make the acquaintance of Coca-Cola?

A. Well, I would not be able to answer that definitely except in a general way; it was during my connection with that firm.

Q. Known and sold for a number of years, has it not?

A. Yes, sir.

Q. This particular product made by this particular firm?

A. I don't know what particular firm made it, but I knew it under that name for a number of years.

Q. The name of it has been trade-marked, or do you know how that fact is?

A. Well, there is a trade-mark in the Patent Office at Washington.

Q. Well, there are two trade-marks there, are there not?

Mr. Miller: I submit if there are trade-marks there, the record is the best evidence, your Honor.

The Court: The exception is sustained.

Mr. Sizer: I am asking the witness as to his knowledge of the name and the extent to which it is used and the manner, and he referred to, on original examination, the trade-mark, and I didn't object, and I want to bring out the fact that he knows it was trade-marked, had a trade-mark name, that the name was trade-marked.

Mr. Miller: You asked him if there were not two on file in Washington, and I say the record is the best evidence.

The Court: The exception is sustained. He can testify to the fact, if he knows it, that there is a trade-mark, but he cannot testify whether there is a trade-mark actually in

Washington or not, as the trade-mark would be the best evidence.

Mr. Sizer: It would be true if it were not for the fact that Mr. Miller himself asked him about that trade-mark name.

The Court: I didn't catch that, the witness may have said something about that.

Mr. Miller: This paper, it purports to be a trade-mark, I mean this pictorial design, and I asked him if that was the character they put out as a trade-mark, the character of a design, and I think my recollection is that I did not ask him whether in fact it was trade-marked.

The Court: I didn't understand him that way.

Mr. Sizer: My recollection is quite distinct that he did ask him, but I will pass from that matter.

The Court: If the witness has stated that, there would be no harm done ——

BY MR. SIZER:

Q. (Interrupting.) You say you have known this product under this name from the time you were connected with this Philadelphia drug house?

A. I have known it probably ten or twelve years.

Q. You say that you have known it probably ten or twelve years?

A. Yes, sir.

Q. Well, have you known it since about 1888 or 1889?

A. No, I didn't know it then.

Q. Ever since you have known it, it has been sold under that same name, hasn't it?

A. I have seen that name, but I don't know what it has been sold under.

Q. You saw that name on the packages and advertisements of the product, did you not?

A. I have seen the advertisement, but I have not seen the barrels or containers until within the last five or six years, probably.

Q. All the advertisements that now appear are written this same way?

A. I would not want to say that, for I do not know.

Q. Did you ever see it on any advertisement written in any different way so far as you recall?

A. I would not say that I have.

Q. Isn't it a fact it always appeared with a hyphen between the two names "Coca" and "Cola"?

A. I have never been impressed with that. I have seen the hyphen there, but I have never had it brought to my attention until it was called to my attention ——

Q. (Interrupting.) Have you ever during these years seen any other substance advertised under that particular name?

A. I have seen a great many substances advertised, but whether any other substance was advertised under that name I don't know.

Q. You don't know of any other substance being sold or made or advertised by that name?

A. No, sir, not personally, I know of another product that has been on the market under that name?

Q. Well, you know also, and have you got a record to that effect that where other products have been attempted to be put on the market by that name, they were enjoined by the Coca-Cola Company?

A. No, sir.

Q. You do know that suits of that kind have been brought and prosecuted?

Mr. Miller: I object to that, that is a matter of record.

The Court: Well, that is a collateral matter — I don't think you can introduce secondary evidence about that.

BY MR. SIZER:

Q. The coca leaves are advertised and sold in this country, and put on the price lists and called for under the name of coca leaves?

A. I have seen that.

Q. And the cola nuts, the nuts of the cola tree, Cola Acuminta, are likewise advertised and put on the price lists and sold as cola nuts?

A. I have seen that statement in the price lists.

Q. Have you not made any investigation to ascertain if this product, Coca-Cola, contains extract from the coca leaf?

A. No, I have not gone into details in that matter.

Q. Have you ever made a statement that it did?

A. I have examined Merchandise No. 5, with a view of finding how much plant extractive was there, but further than that I have not gone.

Q. You did go far enough to ascertain there were certain substances from the coca leaf in Merchandise No. 5?

A. No, sir, I could not find any evidence of that because I didn't go into it far enough.

Q. Did you make a statement in a report to the Government a number of years ago to the effect that the coca-cola made by the Coca-Cola Company, of Atlanta, Georgia, did contain the extracts of the coca leaf?

A. I don't remember any such report.

Q. If you made that statement then you did not know

as a matter of fact whether it did contain extract of coca leaf or not?

A. I had probably stated in the manufacture of Coca-Cola there was used a waste product obtained in the manufacture of cocaine by a factory in Maywood, New Jersey.

Mr. Miller: I move to exclude that answer, because I submit that is not competent.

Mr. Sizer: I move to strike that answer and exclude it from the jury because it is wholly irresponsive to the question.

Mr. Miller: Well, I also move to do it so there will be no disagreement about it.

The Court: The answer is excluded.

BY MR. SIZER:

Q. Mr. Hacker, please read the witness the question, and, Doctor, I will ask you to answer the question.

(Q. "If you made that statement then, you did not know as a matter of fact whether it did contain extract of coca leaf or not"?)

A. From my personal knowledge, no, from my personal investigation, no.

Q. Referring again to the trademark, in this trade name I hand you two papers purporting to be certified copies of the registered trade-mark, and ask you to look at the trade-mark as it appears on these certified copies and state if in each case these are the names under which this product has been advertised and sold.

The Court: Doctor, he has asked you the simple question whether those names that appear there, are the names under which Coca-Cola products have been sold.

The Witness: Well, there are two names here, one is written in one way and the other in a similar way, and one contains trade-mark the word "Trade-mark" in the flourish at the bottom and in the other case it does not. That is the only difference in the two trade-marks that I see at the present. That is all I see at present. I have not examined it minutely.

Q. Well, just compare it minutely and see if you can see any other difference.

Mr. Miller: Well, that will require some time, and if they will let us inspect it when the witness has finished, we will ascertain if there is any difference.

The Witness: That is the only marked change or difference that I see.

The Court: I don't think it will require much time to say whether these two are the same.

Mr. Sizer: It struck me that way, but I offer them in

evidence and pass them to counsel.

The Court: They can be identified as numbers two and three to the testimony of this witness.

BY MR. SIZER:

Q. When was it you say you made these visits to these various cities throughout the South in order to investigate the extent of the use of Coca-Cola?

A. I made a special trip in 1907, and since then I have made various inspections of number of places that I have visited, whenever I am out on business, I always looked into various questions that come up, and in so doing, I looked into Coca-Cola in Dallas, Texas; Chicago, and other places.

Q. Now, you made these investigations by going around to the soda fountains and staying there for an hour or two at a time watching people who came in to buy Coca-Cola?

A. I have done that, and gone to the factories also.

Q. You say they had the substance on sale at all times in Atlanta, indiscriminately to anybody that wanted to come for it?

A. Yes, they had that product on sale there.

Q. Well, they also had chocolate soda water, didn't they?

A. I suppose so.

Mr. Miller: I object to that, that is foreign to the issue, if your Honor please.

Mr. Sizer: We propose to show that chocolate is identical in its composition, that is it has a drug practically identical with Coca-Cola syrup, and coffee and tea — we just want to show that all these substances were on sale in the same way.

Mr. Miller: I submit there are reasons — if you assume what he says, it is not competent.

The Court: I don't think we should extend the investigation to anything except caffeine.

BY MR. SIZER:

Q. Now, how about the coffee extracts; all soda fountains carry coffee extracts in carbonated water?

A. I have seen that, but have not seen it a number of times.

Q. You were not looking for coffee extract, but you were looking for Coca-Cola?

A. My chief main drinks were of that type.

Q. You did observe a number of fountains that had coffee extract for sale, served in carbonated water?

A. I don't know how they were prepared.

Q. Do you know a number of these fountains that sold coffee extract in the form of a fountain drink, or sold coffee extract and flavor from an extract flavor in a fountain drink?

A. I have seen them sold, yes, sir.

Q. You don't know how much caffeine there was in those coffee drinks?

A. No, sir, I never examined those products.

Q. You say that you heard dope very frequently called for and sold in Atlanta at fountains?

A. I have heard the name applied quite frequently.

Q. As a matter of fact, is there a drink made and sold in Atlanta under the name of "Dope"?

A. There was such a drink on the market; I found that at the same time I made the investigation in connection with Coca-Cola.

Q. If the man called for dope, how would the soda dispenser know whether he wanted the real dope or the Coca-Cola under the name of dope.

A. Well, there is no doubt about what they want.

Q. How do you know?

A. From experience.

Q. When a man goes in and calls for dope, then although they have dope for sale, they would not give him what he called for, but would give him Coca-Cola, is that your testimony?

A. That is the usual custom.

Q. How did you know when a man came in and called for dope and they poured some syrup in a glass and filled it up with carbonated water, whether it would be Coca-Cola or dope.

A. Generally circumstantial evidence.

Q. How would you know in any particular case?

A. I will tell you. In my travels on the train and in every place where the carbonated product is sold, where dope is called for, Coca-Cola is usually handed out. I have seen it in bottles many times.

Q. I am not asking you about when it is sold on the train; I was confining my question to the sale of Coca-Cola at the soda fountains. Now, I ask you again if a man goes into a soda fountain and calls for dope and the dispenser pours some syrup into a glass and fills it with carbonated water, how do you know that man is not getting something else than Coca-Cola?

A. I have stated fully that I knew it by circumstantial evidence. I can give my circumstantial evidence.

Q. I want the circumstantial evidence, and I am speaking with reference to soda fountains now.

A. I have not that same circumstantial evidence in conjunction with soda fountains as I have in conjunction with bottled goods. I could not identify the product in that way.

Q. In that case you would not know whether a man was getting dope or was getting Coca-Cola or getting something else, or getting something that he did not call for.

A. Not absolutely except in a section of country where it was not sold.

Q. What particular sections of country were there at the time you made this inspection in which Coca-Cola was sold and dope was not?

A. It has not been sold to my knowledge, in Washington; I have not found it in Philadelphia or St. Louis.

Q. You never found which?

A. The article sold under the name of "Dope."

Q. How do you know they didn't have dope there?

A. Because we made an investigation to find out whether this commodity had ever been sent there.

(Thereupon at twelve o'clock noon a recess was taken until twelve-twenty o'clock the same day.)

AFTER RECESS.

At twelve-twenty o'clock P. M., the Court met, pursuant to the taking of recess.

Thereupon,

DOCTOR L. F. KEBLER

resumed the stand for further

CROSS EXAMINATION,

BY MR. SIZER:

Q. Doctor, this dope, that is the article that is made and sold as dope, served as a fountain beverage at soda fountains, that is about the same color as Coca-Cola syrup, is it not?

A. I should judge so.

Q. There is also another article sold here in this part of the country and known as Cherry Dope, is there not?

A. I have not seen that one.

Q. How is that?

A. I have not seen that one.

Q. You have seen that one yet?

A. No; I have not seen that one.

Q. Is there a soda fountain drink known as Cherry Cola, that is sold on the market?

A. I don't know that one. I know of one "Cherryola."

Q. The name or the word "dope" when a man goes into a soda fountain and calls for a dope, you understand that is just an abbreviation of the term Coca-Cola, is it not?

A. I don't know what it is an abbreviation of.

Q. Just used in a slang sort of way?

A. I don't know whether it is slang or not. It has come to have a definite meaning.

Q. You never heard of the Coca-Cola Company, of Atlanta, advertising their product as "Coke" or "Dope" did you?

A. No.

Q. You never knew of the Coca-Cola Company selling their product as "Coke" or "Dope", did you?

A. No.

Q. You say that on one occasion you saw a man go in and take two or three glasses of Coca-Cola in succession?

A. That happens frequently.

Q. Where did you ever see a man do that?

A. In Atlanta, Washington and Knoxville.

Q. And anywhere else?

A. No, sir, I don't recollect any other place.

Q. Do you recollect any particular place where you saw in Atlanta this same man drink three glasses in succession, we will say of Coca-Cola?

A. Yes; at Jacob's Pharmacy, and another there at Mr. Elkin's place, Elkins-Watkins.

Q. You say there are eight ounces of water in that drink served at the soda fountain?

A. No. I do not know as I said that or made that statement. I stated that certain of syrup was put in there or an uncertain quantity of syrup was put in there, and then the glass was filled up with water, whatever that might be.

Q. Did you not state on your examination in chief that there were about eight ounces in the drink, as ordinarily taken?

A. Seven or eight ounces, yes.

Q. Did you not say about eight ounces?

A. Well, put it eight ounces if you want.

Q. I want you to put it. Did you not say about eight ounces.

A. It is seven or eight ounces to the glass.

Q. And if a man would sit down and drink three glasses at one sitting, he would get about twenty-four ounces of carbonic acid gas, and Coca-Cola syrup in his stomach at one time?

A. He would get twenty-four ounces of the Coca-Cola beverage as given to him at that fountain.

Q. Now, that Coca-Cola syrup is over fifty per cent. sugar, is it not?

A. Approximately fifty per cent.

Q. Is it not between fifty-two and fifty-three per cent. sugar?

A. My recollection is, it is about fifty per cent. of sugar.

Q. Are you prepared to state that it has not got between fifty-two and fifty-three per cent. sugar?

A. The analysis was here. I would not make any definite statement.

Q. Now, if a man should take more syrup in a glass or much more than the one ounce that is ordinarily served, the mixture would be so sweet as to be unpalatable, would it not?

A. No. I have seen men drink Coca-Cola straight.

Q. Where did you see that done?

A. In Washington.

Q. How much would he drink at a time?

A. Three or four ounces.

Q. Four ounces. And he would get a good deal of sugar in that, would he not.

A. Approximately two ounces.

Q. Who is the man that did that?

A. I don't know.

Q. He would just go to a soda fountain and call for straight Coca-Cola syrup?

A. Yes.

Q. How many different individuals do you recall seeing do that?

A. That is the only one I have seen.

Q. And you don't remember his name?

A. No.

Q. When was that?

A. I have seen it in Washington several times.

Q. The same man?

A. Yes.

Q. What does he do?

A. I don't know.

Q. Does he go to the same fountain all the time?

A. That, I cannot answer.

Q. Would he take that sort of a drink more than once a day?

A. I don't know about that.

Q. What particular place was it that you saw that?

A. Oh, I have seen him in the Stephan's ——

The Court: I do not think you need to show as to each individual man. Just take the general ——

BY MR. SIZER:

Q. I will ask you then about this individual lady that

you talk about down at the Piedmont Hotel, that telephone operator. What was her name?

A. I did not introduce myself to her.

Q. Did you find out her name?

A. No, sir.

Q. Is she the day operator or the night operator?

A. I made my observations during the day.

Q. She was the operator then who had charge of the local exchange in the Piedmont Hotel during the day?

A. As far as I recollect, yes.

Q. When was it you observed her habits with respect to drinking Coca-Cola?

A. I could not answer that question definitely. I have been there a number of times.

Q. And every day would you stay around there to see how many drinks she would take in the course of a day?

A. Not every day; but I observed that just a few days, a few times.

Q. You stayed there two days and hung around the hotel just to see how many drinks of Coca-Cola that lady took?

Mr. Miller: I object to the term "hung around."

Mr. Sizer: I withdraw that offensive term, and will say stand around the hotel.

The Witness: I did not have to stay around there all the time, because I could see them bring those quantities in at the time I was there. She may have had more than that.

Q. How many drinks did you see her take in the course of any one day?

A. Just the number I have given.

Q. How many was that?

A. One, two, three, four, five.

Q. Four or five, did you say?

A. Yes.

Q. Would they be distributed all along throughout the day?

A. Yes.

Q. Did you see her take four or five drinks on more than one day?

A. No, I do not think I could say that I did.

Q. You just saw the drinks brought in to her?

A. Yes.

Q. How do you know it was Coca-Cola?

A. I saw the man that had the Coca-Cola, the porter. Coca-Cola down there is served on trays, and carried around the city from certain places, and I have seen it go out of this durg store from the fountain and carried right to these places.

Q. Yes, but the dope is the same color as the Coca-Cola, is it not?

A. Yes.

Q. And Coke is about the same color as Coca-Cola?

A. I have never seen the dope carried around that way.

Q. What I want to get at is how you knew it was Coca-Cola.

A. I have seen it drawn right out of the Coca-Cola fountain.

Q. I am speaking about this young lady, where you would stand at the hotel and see the messenger boy come in and bring her a glass of some soda fountain beverage. How did you know whether that was Coca-Cola or dope?

A. Chiefly circumstantial evidence.

Q. What was that circumstantial evidence?

A. The common practice obtaining in Atlanta, Georgia, of porters carrying Coca-Cola around the city to various places, young men going out from the hotels, or others, and bringing the material into the people who called for it.

Q. And do not people call for lemonade sometimes, and send out and get it?

A. I have never seen that practice anywhere.

Q. Did you ever hear anybody calling for malted milk and sending out and getting it?

A. I have never seen anyone peddle it in the street, malted milk or lemonade, in that manner.

Q. Have not seen them send out and get a chocolate soda drink?

A. I have not seen any one peddle it around in that manner.

Q. Or a chocolate milk?

A. No.

Q. You never saw anybody send out and get a glass of a soda fountain beverage except Coca-Cola?

A. Oh, yes. I stated that I never saw it in the manner it was done at that time and is now probably done, in Atlanta.

Q. What was the difference between the manner in which this porter, or messenger, brought in this glass that the young lady took, and the manner in which other people would be served with soft drinks generally?

A. It is the regular practice. He would have half a dozen and more glasses of Coca-Cola on the tray.

Q. How do you know it was all Coca-Cola?

A. Well, of course I would not be positive.

Q. You would not know whether it was Coca-Cola,

Dope, Sarsaparilla, or some other substance the same color?

A. No, except this, that I have seen the porters coming into these drug stores and soda fountains and have their trays filled with this beverage, and I have never seen it with any other.

Q. On this occasion when you were in there watching the young lady, you did not see what the porter got at the drug store, did you?

A. No.

Q. You just saw him bring in a glass of a substance on a tray and hand it to the young lady?

A. There were a number of glasses on the tray, usually.

Q. Who were the others given to? Were they all given to her?

A. Going up and down in the hotel. Others would drink them also.

Q. Serving her and other people?

A. Yes.

Q. One may have been dope, one Coca-Cola, one sarsaparilla, and one something else, or a cherry dope?

A. I have never seen sarsaparilla put on a trap that way.

Q. A great many people prefer sarsaparilla to other drinks, do they not?

A. That is possible.

Q. And sarsaparilla is very similar in color to Coca-Cola, is it not?

A. It is colored with the same material.

Q. And a great many other fountain drinks, in fact, have the same color?

A. Not so very many.

Q. There are several others, however?

A. They are all of this same general type.

Q. I did not ask you as to the type. There are a good many other fountain drinks that color, similar to Coca-Cola?

A. There are a number of others.

Q. You stated, I believe, on your examination in chief that you thought there would be about an ounce and a half of syrup put in eight ounces of liquid. That would be mere estimate, would it not?

A. I have gone out and bought it and have actually measured the material.

Q. Yes. You called for it extra strong, sometimes would you not?

A. Sometimes.

Q. You would call for it extra strong, and when you

would call for it extra strong, they would give it to you extra strong?

A. Yes.

Q. And sometimes make you pay extra for it, would they not?

A. I never had to pay extra.

Q. They knew you were a Government inspector?

A. No.

Q. They did not know that?

A. No.

Q. Did you ever show your badge to them when you wanted to get it extra strong?

A. I don't think that I have ever shown my badge in my life, except to a few factories that I wanted to visit.

Q. A few what?

A. Factories.

Q. You do not show it around soda fountains then?

A. No.

Q. You would just go in and tell them you wanted to get a glass of Coca-Cola and get it extra strong?

A. Just as an ordinary consumer; yes.

Q. Is that the way in which you habitually drink it, Doctor?

A. I do not drink it habitually.

Q. How often do you drink it?

A. I never drink it excepting — I never drank it excepting during the period I was making experiments on myself.

Q. How long a period did they cover?

A. Oh, a couple of months.

Q. Then you never bought it at any fountains excepting during that two months?

A. Oh no. I did not buy it at the fountains then. I bought the real stuff that I knew was genuine, took it home, bought carbonated water and made it up myself.

Q. You just bought the syrup in kegs, would you?

A. In jugs.

Q. In jugs?

A. Yes, sir.

Q. So you never did buy it at the soda fountains?

A. Not for my own consumption; no.

Q. What did you buy it for?

A. For information.

Q. What did you do with it when they would sell it to you?

A. I disposed of it in various ways. Sometimes I would throw it away after I got the information I wanted; and the inspectors have brought a good many samples to me,

and we have those under seal.

Q. Talking now about the purchases you would make when you would go to a soda fountain and tell them to give you a glass of Coca-Cola, and make it extra strong, what did you do with that when they gave you that glass?

A. As I told you, I bought one in Nashville, and simply let it stand after I got the information I wanted, simply let it stand and let the proprietor do whatever he wanted to do with it.

Q. In other words, you never bought it that way to drink, did you?

A. Well, I might simply answer that yes.

Q. Did you drink it?

A. No.

Q. You did not buy it then for the purpose of drinking it?

A. No.

Q. You bought it for the purpose of seeing whether you could get it extra strong?

A. Yes.

Q. And that is all?

A. Yes.

Q. Now, you were asked, Doctor, about caffeine. You say caffeine is a drug?

A. Yes, sir.

Q. That depends on the manner in which it is used, does it not?

A. Caffeine, as such, is a drug. If it is ——

Q. Is it not a fact that caffeine is used about a hundred times more in beverages than it is in drugs, or as a drug?

A. Well, I am not able to answer that question.

Q. You do know this, however, Doctor, that the use of caffeine in beverages is vastly more extensive than the use of caffeine as a drug? The use of caffeine in beverages and food stuffs, is it not true, that that is vastly more extensive than the use of caffeine as a drug?

A. I think that is true; yes.

Q. The fact is, Doctor, that a vast number of foods are also used as drugs; is that not so?

A. Well, if they are used as foods, they would not be used as drugs. A drug may be a food one time and a drug at another.

The Court: There is no dispute about that, Mr. Sizer.

BY MR. SIZER:

Q. For instance, chocolate contains a drug, does it not?

The Court: You need not go into that.

Mr. Sizer: May it please your Honor, they brought out

the fact that caffeine is a drug: I suppose they deem that material. We want to show that other substances in common use also contain drugs similar in character.

The Court: That was not your question. You just asked him if substances were not used as food and drugs.

Mr. Sizer: I want to follow that up.

The Court: You may do that.

BY MR. SIZER:

Q. Chocolate contains a drug, does it not?

The Court: We will eliminate as I say all other food substances that do not contain caffeine.

BY MR. SIZER:

Q. Does not chocolate contain caffeine?

A. A trace.

Q. Does not it also contain another drug closely allied to caffeine?

A. Yes.

Q. That is Theobromine?

A. Yes

Q. Chocolate contains more theobromine than caffeine, combined, or together, than coffee does of caffeine, does it not?

Mr. Miller: I object to any inquiry as to theobromine.

The Court: The exception is sustained. We will limit this to caffeine.

Mr. Sizer: The witness says theobromine is closely allied to caffeine. As a matter of fact, we expect to show it is practically identical.

The Court: If you have a witness who is prepared to say it is identical, or practically so, you may go into that.

BY MR. SIZER:

Q. Did you say, Dr. Kebler, that caffeine is a poison?

A. It has poisonous properties; yes. It is of a poisonous nature; yes.

Q. On what do you base that statement?

A. Reading and observation.

Q. Is there any work on toxicology, or recognized authority, that classes caffeine as a poison?

A. Yes, sir.

Q. What work is that?

A. Kobert. Do you want me to give it in detail.

Q. No, I just want you to give the names of any authors.

A. Kunkel, Kionka, Lewin, Jaksch — that is a volume published as part of a series of books edited by Nothnagel, of Germany. Blyth speaks of it. Dragendorff, of Russia;

Guerin, of France; Gadamer, of Germany; Muccioli, of Italy; Vitalli, of Italy; Brundage; Bleucher, of Germany; and Drs. Vaughn, and Novy included in their book on Cellular Toxins.

Mr. Miller: What Dr. Vaughn, please.

The Witness: Dr. Victor C. Vaughn.

BY MR. SIZER:

Q. That is Dr. Victor C. Vaughn, who is present and has been present at this trial?

A. Yes, sir.

Q. How many of the books are books on toxicology, and how many of them are works on Pharmacology?

A. All the books I have mentioned are books on toxicology, dealing either specifically with all of the toxicological features, or books for determining and estimating poisonous substances.

Q. They all treat, you say, of caffeine?

A. Yes, sir; give the symptoms and poisoning conditions.

Q. And do they not also treat of every substance that has any pharmacological action?

A. No, sir.

Q. Have you those books that you refer to?

A. They are in my possession.

Q. Are they here?

A. They are in the city.

Q. In Chattanooga?

A. Yes, sir.

Q. Will you produce those books for examination here?

Mr. Miller: We will be glad to give him the references. if your Honor please.

Mr. Sizer: We would rather have the books.

Mr. Miller: The books are private property, belonging to the Surgeon-General, and we are not permitted to give them over. We brought them here for accessibility, and will give counsel references to those books and papers, if they like, but we are not prepared to send the Government property out of our possession. Some of them belong to the Congressional Library, Washington, and we borrowed them for the purpose of bringing them down, and we object to the witness turning them over to adverse counsel to deal with as he likes. We have no objection to his inspecting them.

Mr. Sizer: We do not ask to have them turned over to us. We want to have an opportunity to inspect the books.

The Court: I understand counsel are ready to bring the books and let you examine them.

Mr. Miller: We will be very glad to do that, with reference to the pages.

BY MR. SIZER:

Q. I will ask you to give the titles of the works of those you have, Doctor.

A. Shall I give the English equivalent.

The Court: Let him just furnish a list of them, and file it, giving references as to the pages, after he gets through, unless there is some particular thing about some particular work that you desire to examine him about now.

Mr. Sizer: Well, we will get him to give us the list.

The Court: Yes, and then you may examine him further, after that, if you wish.

BY MR. SIZER:

Q. How many of those works are English works, or American works?

A. Alyth's.

Q. What is the title of that one?

A. Poisons, Their Effect and Detection.

Q. What other American works have you?

A. Brundage, Brooklyn, New York, Manual of Toxicology. They are the only two that I have in English.

Q. And the others are German and French?

A. German, French, and Italian.

Q. Are you familiar with the works by Peterson, and Haines, called Textbook of Legal Medicine and Toxicology?

A. I am very well acquainted with the book.

Q. Is that recognized as a good authority?

A. Yes.

Q. Is caffeine in any way treated of or referred to in that work?

A. No, sir.

Q. What do you mean, Doctor, by the term "Poison"—wait just a minute. Do you know of a work by John J. Reese, M. D., entitled Textbook of Medical Jurisprudence and Toxicology?

A. I do. I have read it and studied it.

Q. Is caffeine in any way treated of in that work?

A. No, sir.

Q. Have you read Wharton & Stille's Medical Jurisprudence?

A. I have read part of it.

Q. The second volume of that is devoted exclusively to the treatment of poisons?

A. Toxicology; yes, sir.

Q. Is caffeine in any way referred to or discussed in that work?

A. It is not.

Q. Are you acquainted with the work by Theodore G. Wormley, M. D., P. B. D., LL. D., on Microchemistry of Poisons?

A. I have; I have a copy of it.

Q. Is caffeine in any regard referred to in that work?

A. No, sir.

Q. Are you familiar with Witthouse & Becker's Work on Poisons?

A. I am.

Q. Is caffeine treated of in that work?

A. No, sir.

Q. That is a standard authority, is it, in this country?

A. Oh, yes; a good book.

Q. Are you acquainted with Taylor's Principles and Practice of Medical Jurisprudence?

A. I am.

Q. Is that a standard authority?

A. Yes, sir.

Q. Is caffeine in any way treated of or referred to in that?

A. I have not found it.

Q. Those are all standard medical authorities in this country, are they not, and are standard toxicological authorities?

A. The latter one, edited by Dr. Smith, or whatever his title may be, is an English publication, not of this country. The others are, to the best of my knowledge, published in this country.

Q. This last one you refer to is read and studied a great deal in this country, is it not?

A. Oh, yes.

Q. And it is recognized in this country as a standard authority, is it not?

A. Yes.

Q. I want to ask you, Doctor, to refer to this work of Blyth's and state the page on which he treats of caffeine as a poisonous substance.

A. It is the last edition; I did not get the year of it. But it is page forty-one. You will notice there he discusses theobromine, caffeine, etc., and deals with the poisonous effect of caffeine upon lower organisms and gives the report of V. Lusina relative to the lethal dose of caffeine on the frog.

Q. And treats of the effect of caffeine on frogs and other lower animals?

A. He refers to that then.

Q. He does not treat of the effect of caffeine on a human being?

A. Just treats it as a general topic.

Q. You say he treats of it with respect to its effects on lower animals and frogs?

A. I said frogs.

Q. Does he call it a poison?

A. Oh yes; everything in that book is supposed to be a poison.

Q. In the manner in which he treats of it he treats of it as injected into the veins of these animals, does he not?

A. That part I do not remember.

Q. Do you not recall that he does not treat of the effects of caffeine when fed to lower animals at all, but only of the effect of it when hypodermically injected into the veins?

A. That feature of it I do not remember.

Q. What do you understand by the term "poison" docto, when you say that caffeine is a poisonous substance?

A. A poison is any chemical, which when introduced into the body or generated with the body produces death or disease or permanently or temporarily impairs an organ that is healthy or apparently healthy.

Q. As the term is popularly known, doctor, is it not confined to substances that produce death in comparatively small quantities?

A. That view is sometimes taken.

Q. Is that not the popular sense in which the term is used?

Mr. Miller: I do not think this witness is qualified to speak of that in the first place, and I believe that is not pertinent or revelant in any way as to how it is popularly understood. I submit that how the laity might understand it is not to be the rule in the case, or how the medical definition might define it is not to be the rule, but we define poison and then tell the effects of this on the human system.

The Court: Passing now from the question of whether the term is used in a technical sense or a popular sense, I think that in so far as the popular sense may be material, that the jury will determine that. I sustain the exception.

BY MR. SIZER:

Q. You say, doctor, poison is any chemical which may result in the impairment of a function?

A. Yes.

Q. It does not depend then upon the degree of the im-

pairment of the function?

A. No. If it impairs the function it is a poison.

Q. Suppose a substance, instead of impairing a function, enhances it; that is directly opposite to a position then?

A. If it enhances it, it might be considered non poison.

Q. What you call "anti poison"?

A. Not necessarily.

Q. Non poison. At any rate the fact is that the effect of caffeine, the primary direct effect is to enhance the performance by some of the organs of their normal functions; is that not true?

A. No; it acts on the part and absolutely causes death by paralysis of the heart.

Q. Did you ever hear of a case, or did you ever personally know of a case of caffeine causing death by paralysis of the heart?

A. I know of a case; yes.

Mr. Miller: What I wish to understand is whether counsel wishes to withdraw that part of his question as to whether he ever heard of it.

Mr. Sizer: I want to put that separate — and I want to withdraw it for the present.

Mr. Miller: All right.

BY MR. SIZER:

Q. Did you ever know personally of a case?

A. No.

Q. Did you ever hear of a case of caffeine, the use of caffeine resulting in paralysis of the heart?

A. Yes, sir.

Q. Where was that case?

A. Zenetz reports three cases.

Q. Are those the same cases referred to by one of the other witnesses on yesterday?

A. Yes. Another author reports another case.

Q. What was the quantity of caffeine taken in those cases?

A. I don't remember all those points. The first case— that of a healthy woman, twenty-two grains all told. After taking ten powders ——

Q. (Interrupting) Ten powders of what?

A. Of caffeine. Wait a minute ——

Q. (Interrupting) How many in each?

A. Taking ten powders of citrate of caffeine, containing three tenths of a gram or four and one-half grains.

Q. Four and one-half grains each?

A. Yes, sir.

Q. Ten powders containing four and one-half grains of caffeine each, a day?

Mr. Miller: No, not caffeine, he did not say that.

BY MR. SIZER:

Q. Citrate of caffeine. Well, citrate of caffeine is about one half caffeine, is it not?

A. Yes, sir.

Q. That would be then, about two and a quarter grains each?

Q. How rapidly were those doses, those powders, taken?

A. Taken during the period of a day as far as I can see.

Q. Go on with the other cases and state the details as to them.

A. In the second case, death resulted from the taking of three grains of caffeine citrate, in three doses per diem, over two days.

Q. Where was that case reported from?

A. That was Zenetz.

Q. I mean, where did the cases occur? What were the circumstances of them, and what was the age and sex of the person?

A. It is a male. What the age was I do not know.

Q. Have you anything in that report to show the conditions under which it was given, or the state of health of the person?

A. Yes, he was — dissipation was reported. He is reported as having suffered with pneumonia, or was suffering with pneumonia.

Q. Yes,—from dissipation?

A. Yes.

Q. And then they gave him six doses of caffeine and he died?

A. Yes.

Q. When was that report made?

A. 1899.

Q. What is the other case you have got there?

A. The other case is that of a young woman taking, according to the best estimation as given, approximately thirty grains of caffeine during the period of a day.

Q. What was the matter with her before she took the caffeine?

A. She was apparently suffering with Bright's disease?

Q. And she took thirty grains of caffeine and died?

A. Yes; in a day.

Q. What are the details of those other cases you have got?

A. Gautherin, the same case as referred to here before.

Q. Those are the same cases?

A. Referred to here this morning; yes.

Q. Go on. If there are any different cases than those you have been speaking about, I want the details of them.

A. This person took in a day, as far as I can get it here, from 22 to 30 grains per diem, per day.

Q. Is that the case where caffeine was administered by mistake to a patient suffering from typhoid fever?

A. Yes. These cases are reported to Guatherin by Chantemesse. He attributed the death due to the action of the caffeine on the heart. The patients were apparently suffering from typhoid infection.

Q. It is not surprising, if a man is suffering from typhoid infection and is given thirty grains of caffeine in a day, that he dies, is it?

A. They gave the drug with a view to reviving the patient.

Q. And instead of reviving him, it killed him?

A. In this case it did.

Q. Have you got any other case?

A. Lemaine reports a case where two children were suffering with diphtheria, age twelve years, and the exact quantity of caffeine they received I have not calculated here.

Q. Children, you say?

A. Children twelve years old. Both of them received the same quantity of caffeine. One died and the other survived. They apparently received, in one injection of — let me put it in the common system,—of three grains per injection.

Q. Injected it into the veins?

A. Yes, sir; it was; simply says injected.

Q. At any rate, it was injected and not taken through the mouth? That is what that means?

A. That is what it says.

Q. What was the trouble with the children? Why did they give them the caffeine?

A. I stated they were suffering with diphtheria.

Q. And did they give that caffeine all in one day?

A. It says "Injection."

Q. All at one time; and one of them died and one of them did not?

A. That is what it says.

Q. Are those the only cases you have reported, now?

A. Those are the only ones I have.

Q. Those are all cases, Doctor, in which excessive doses

of caffeine were given to people already suffering with some disease?

A. I do not want hardly to make that statement. The doctor knew the conditions under which he was giving the caffeine and I hardly would consider myself in a position to criticise a medical man as giving an excessive dose.

Q. At any rate, they were people who were suffering with some disease, and were given large doses of caffeine?

A. They were suffering with some infirmity.

Q. And were given large doses of caffeine?

A. I consider them large doses.

Q. Is there anything in the report that you have there to show whether they died from caffeine, or from the diseases they were suffering with?

A. The authors report that fact. Zenetz states specifically that post mortem showed that the heart was very firmly contracted, which is due to the action of caffeine.

Q. That is one of the cases?

A. The three cases, all three of them. The third one was reported as having died of the same conditions, but just which one I do not have here.

Q. Do those reports show that autopsies were performed in all those cases?

A. Apparently.

Q. Do the reports show it?

A. Yes.

Q. In all of them?

A. Yes, those four.

Q. Now, is it not true that the diseases with which those people were suffering in each case would have had a tendency naturally to have weakened the heart?

A. Yes; the caffeine was given to support the heart.

Q. But the diseases themselves had impaired the heart action?

A. Qnite possibly.

Q. Is it not true, Doctor, that when caffeine is taken in small or moderate quantities, as it is usually taken in beverages, that it acts as a distinct stimulant to the brain, the nerve muscles, and thereby enhances the performance by the organs of their normal functions?

A. It stimulates the brain, but by so doing it impairs the action of the function of the brain by over-working the brain and causing impairment in that way, just the same as strychnine. When it is introduced it causes acceleration, or causes reflexes or nervousness, and in that way impairs the ability of the individual.

Q. Do you mean to assert now, Doctor, that every time a person takes caffeine in the form of a beverage, as it is

found in coffee, Coca-Cola, or anything of that kind, that the effect of that drink is to impair the mind?

A. I don't know as I want to say that as a general proposition. It will depend upon circumstances.

Q. As a matter of fact, it always does enhance his mental faculties and improve them and brighten his mind?

A. No.

Q. For the time being?

A. No, I do not think so. I think quite the contrary. I would like to illustrate. Where I got my first impression relative to the effect of caffeine, it was at the Jefferson Medical College, listening to the lectures and the professor talking about caffeine?

Q. You need not mind what the professor told you. I am asking for your own knowledge.

Mr. Miller: Give your own impression.

Mr. Sizer: I object to his testifying what some medical lecturer stated as to the effects of caffeine. I am examining him on his own knowledge.

Mr. Miller: What the witness said is that he would like to illustrate, and I submit he has a right to do that.

The Court: He may illustrate.

Mr. Miller: Give your illustration, that you started to do.

General Cox: Resulting from what you heard the doctor say, if necessary.

The Witness: He stated that ——

Mr. Sizer: Hold on, Doctor. That has been ruled out.

Mr. Miller: The illustration you started to give, Doctor. It makes no difference where it came from—the point is, your illustration that you wish to make.

The Witness: I cannot give it under the circumstances because it was the information as I obtained it from the lecture room.

Mr. Miller: Very well, then.

BY MR. SIZER:

Q. Is it not a fact, Doctor, and so stated in all medical works treating of the subject at all, that the primary effect of caffeine is to stimulate the mind and the muscles?

A. Yes.

Q. Suppose a man takes a cup of coffee in the morning for breakfast and he is stimulated thereby and goes out and performs his daily work better than he otherwise would; how long would it take the stimulation of that coffee to pass away?

A. I could not answer that question.

Q. You are sufficiently expert to be able to answer that.

A. If you will give me the conditions under which the individual was laboring, the sex, the age, the environments, and all the details of that character, I would be in position to answer your question.

Q. Caffeine is recognized as being a substance that is rapidly eliminated, is it not?

A. Not necessarily.

Q. It is not so considered?

A. Some authorities state that it is cumulative.

Q. How long does it take the amount of caffeine that would be found in an ordinary cup of coffee, for instance, to be eliminated from the body?

A. That would depend upon conditions.

Q. Well, then, say an ordinary, normal individual.

A. I have never experimented on that point.

Q. You are not able to testify on that point?

A. I am unable to say when it would be eliminated, or how soon.

Q. Suppose that individual that I have referred to a while ago takes a cup of coffee and goes out and does his morning work and feels better from the effect of it; you would not say that any deleterious results necessarily followed that, would you?

Mr. Miller: I object to that, as argumentative, on the hypothesis that there is no basis for it at this time.

Mr. Sizer: He has testified as an expert as to the effect of caffeine and I want him to go into the details.

The Court: He has not testified on direct examination that those are deleterious. You are bringing up another question now. I think the question of the meaning of the word deleterious is not for experts. It is one for the jury, under the charge of the Court. Experts may, of course, testify to what the effects are, but whether those effects are described properly under the head of deleterious is not a question for an expert.

BY MR. SIZER:

Q. Suppose an ordinary, healthy individual takes a cup of coffee in the morning, what deleterious results would follow from that, as a general rule?

A. There might not any follow.

Q. As a matter of fact, is it not true that in 999 cases out of a thousand no deleterious results follow?

A. I am not prepared to state that definitely.

Q. Suppose a man is accustomed to taking a cup of coffee for breakfast, and another cup for lunch.

A. Yes.

Q. What deleterious results would ordinarily follow from that?

A. I think that man, keeping that up for a goodly length of time, several years, would suffer as the result.

Q. In what way?

A. Become nervous, become irritable. Probably lose sleep. It would depend entirely upon conditions. You restricted the time, did you not, as to morning and noon?

Q. How long would it take an ordinary, healthy man, drinking two cups of coffee a day, to develop those symptoms you have testified about?

A. I would not be able to answer that question.

Q. Are you able to answer as a matter of fact that it would result in any such consequence at all?

A. There is no question in my mind but that it does.

Q. Does it always?

A. No, not always; but it does result in those conditions.

Q. Does it result in those conditions in the majority of cases?

A. Or normal, healthy individuals?

Q. Yes.

A. If you will define to me what the normal, healthy individual is, I would be probably in position to answer the question.

Q. Don't you know what a normal, healthy individual is?

A. Take for example — there are a good many people in this room who apparently look healthy and normal, but they may not be healthy and normal. They may be nervous, excitable, and irritable. A cup of coffee to those individuals would be probably very deleterious.

Q. What I want to get at now is your opinion as an expert on the question of whether or not drinking two cups of coffee a day by a normally healthy individual would result in deleterious consequences, and if so, how long it would take to so result.

A. I think I have answered that question.

Q. How did you answer it?

A. That such a taking of coffee may injuriously affect that individual by causing nervousness, irritability, sleeplessness, by drawing upon his reserves, and may ultimately break him down.

Q. And on the other hand it may not affect him so?

A. It may not.

Q. And in the majority of cases it would not so affect him; is not that true?

A. Well, I am not prepared to make that statement.

Q. Suppose a man takes three cups of coffee a day, being a normally healthy individual; would that necessarily result injuriously to him in any way?

A. That man would come to the grave, sooner or later.

Q. How long will it take him to come to the grave?

A. Well, I do not know.

Q. Do you assert that now as a universal rule?

A. No.

Q. Do you assert that would follow in the majority of cases?

A. No, I would not say that.

Q. Do you know whether it would follow in a majority of cases or not?

A. No; it will not follow in a majority of cases, but it will follow in many cases.

Q. But as a general rule — you say now as an expert that a man might not safely drink as much as three cups of coffee a day without deleterious consequences?

A. He might; yes.

Q. And probably would in a majority of cases?

A. A strong healthy individual, yes; a healthy, normal individual, he might.

Q. Well, the drinking of a cup of coffee or a cup of tea, if a man likes it, results in benefit to him in that it makes him feel better?

A. Well, you might say the same of whiskey, morphine or opium.

Q. Well, I was not talking about whisky, morphine or opium just now, but about coffee. If it makes him feel better is it not to his benefit?

A. Not necessarily.

Q. You do not think it benefits him to feel better?

A. That depends.

The Court: That is immaterial.

BY MR. SIZER:

Q. If it enables a man to do his work better, is it not of advantage to him?

A. Temporarily.

Q. And then, going back to the proposition I started out on a while ago, the primary result of a moderate taking of caffeine as a beverage is beneficial to the man, is it not, the direct and immediate result?

A. You are talking about the average healthy individual?

Q. Yes.

A. I do not think it is.

Q. You do not think it is of any benefit to a man to

feel better and be able to do his work better?

Mr. Miller: That statement is argumentative.

The Court: Let him give his opinion as to what the effect is, and then whether he calls it beneficial or not is immaterial.

BY MR. SIZER:

Q. Do you drink coffee yourself, Doctor?

A. Occasionally.

Q. How occasionally?

A. When I am at home, I do not drink any; but when I go out where I cannot get the beverage I want, why, I might drink a cup of coffee.

Q. Why do you drink it?

A. Because I have not anything else to drink that I like.

Q. You like it, then?

A. Under the circumstances; yes.

Q. What is the beverage you ordinarily drink?

A. Water; warm water, sugar and milk.

Q. Do you ever go to places where you cannot get water?

A. I get to places where I cannot get warm water of the character I want; yes.

Q. And when you cannot get warm water of the character you like, you say you drink coffee?

A. Yes.

Q. Do you drink tea?

A. No, sir.

Q. You never have done it?

A. Well, I probably have drunk ——

The Court: Are you intending to ask this witness of the effect of these drinks on him? If not, it is immaterial.

Mr. Sizer: Yes; I want to ask him all about it.

The Witness: I probably have drunk eight or ten cups of tea in my life.

BY MR. SIZER:

Q. Why did you drink it?

A. Well, sometimes ——

The Court: (Interrupting) I understood him to say that he had only drunk eight or ten in his life. If that is all, we will not stop to go into that.

BY MR. SIZER:

Q. Do you drink coffee, though, quite frequently?

A. No, I have drunk, since I have been in Chattanooga, probably one cup.

Q. Do you not feel better when you drink coffee?

A. It depends entirely on when I drink it.

Q. It stimulates you when you drink it?

A. When I take it at night I do not go to sleep.

Q. As to coffee taken at night, is it not a fact and so stated in a great many medical works, that very often coffee induces sleep?

A. Occasionally; it depends on the condition of the individual.

Q. So it is not true universally that the taking of coffee will produce wakefulness?

A. No.

Q. Is not this further true: That when a man becomes accustomed to taking coffee, he can take more without experiencing any untoward effects — that is, if he is accustomed to taking it?

A. With a normal individual; yes.

Q. He acquires what is known as tolerance for coffee?

A. Yes.

Q. And so a man may go over a series of years and take coffee from day to day in the same quantities without it affecting his health prejudicially?

A. I think I have answered that question.

Q. Another thing: Coffee contains some other substances besides caffeine, does it not?

A. Yes; yes, sir.

Q. It contains, for instance, a substance known as coffeal, or empyreumatic oil?

A. Such a substance has been reported.

Q. And it contains tannin?

A. Some.

Q. Now, that coffeeal is a stimulant itself, is it not?

A. Some writers say so.

Q. That is a substance developed in the roasting of the coffee, is it not?

A. Yes.

Q. And it has a tendency to make a man bilious sometimes, does it not?

A. A what?

Q. A tendency to make a man bilious sometimes?

A. I don't think there is any evidence on record that will show that.

Q. Did you ever hear of coffee making a man bilious, under certain circumstances?

A. I have heard that word bilious used in connection with coffee, but there is no evidence whatever to show it is due to coffeal or any other single ingredient.

Q. I am just asking you about whether you ever heard

of coffee producing biliousness?

A. I have heard that; yes, sir.

Q. Have you not also heard that was due to the effect of the coffeal in coffee?

Mr. Miller: What he has heard stated is one thing, and I object to that. If he asks whether that is laid down in works known as standard authorities, then I do not object. object.

BY MR. SIZER:

Q. I will ask him, then,—if laid down in works of standard authorities you have ever seen that statement.

A. I have never seen that.

Q. It is true, is it, Doctor, that a great many substances, in fact almost all substances are harmful when taken in excess, and are not harmful, and may be beneficial when taken in moderation?

A. Yes.

Q. For instance, a man might eat too much meat and experience deleterious results?

A. That is true.

Q. Or it is possible that he might drink too much water?

The Court: Those matters are obvious.

BY MR. SIZER:

Q. Did you speak of caffeine as a chemical product, Doctor?

A. I did.

Q. You mean by that term the same as a drug?

A. Yes, sir.

Q. You say that a poison, I believe, is a chemical or a product that the use of which ——

A. No; I said poison as a chemical. The poison is induced by the action of the chemical. A chemical may be a drug, but not all drugs are chemicals.

Q. What chemicals are there that are not drugs?

The Court: What is the bearing of that distinction?

Mr. Sizer: I do not think there really is any distinction. I am just trying to find out.

The Court: I do not see the bearing.

BY MR. SIZER:

Q. Do you say caffeine is a drug and also a chemical?

A. Certainly.

Q. I want to know what the difference is between a chemical and a drug.

A. A chemical may be a drug, and a chemical simultan-

eously, but all drugs are not chemicals.

Q. I want to get at the distinction that you draw between a drug and a chemical.

A. For example, kola and coca are drugs, but they are not chemicals.

Q. Why not?

A. Because they are plant substances composed of a multitude of substances, some of which are chemicals and some of which the nature of which we have no knowledge of whatever.

Q. Now, to get at your distinction, is salt a chemical?

A. Oh, yes.

Q. Is salt a poison?

A. In large quantities, yes.

Q. Is it a poison in small quantities?

A. No.

Q. Would you, in the same manner in which you have defined caffeine to be a poison, call salt a poison?

A. Yes.

Q. Is mustard a poison?

A. Mustard contains an agent that is highly poisonous.

Q. In small quantities mustard is recognized as a legitimate article of food, is it not?

A. Oh, yes.

Q. Now, about spices of various kinds. They are chemicals, are they under your definition?

A. They are condiments.

Q. Are they chemicals?

A. Oh, no.

Q. Are they drugs?

A. Yes, they may be so used, but they are generally employed as condiments.

Q. How about pepper?

A. Pepper contains a very violent poison.

Q. At the same time pepper in small quantities is recognized as a legitimate food substance?

A. Oh, yes, certainly.

Q. Or condiment?

A. Certainly.

Q. So the fact that a substance may be a chemical, or that it may in a certain quantity result deleteriously to the system, does not in all cases brand it as a poisonous substance,or as a substance unfit for food?

Mr. Miller: I think that is argumentative.

The Court: I think that is true.

Mr. Miller: Your Honor please, I move to exclude the examination with respect to pepper, mustard, and salt and spices because it is not, as to them, pertinent or relevant,

there is no caffeine shown to be in those.

The Court: The purpose of the cross examination, as I understood it, was to show the way in which this witness used the term "poison", and the court holds it is competent.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. I understand you to say that there is in pepper, and in mustard a certain poisonous substance?

A. Yes, sir.

Q. And that salt if taken in a large quantity may become poisonous?

A. Yes, sir.

Q. Is there or not a poisonous substance that may be extracted from peaches?

A. Oh, yes.

Q. What is it?

A. Peach kernels; hydrocynic acid.

Q. I will get you to state whether or not that is one of the most deadly poisons in the world?

A. Oh, it is.

Q. Now, with respect to dirt getting on these stringers and getting into these tanks, I will get you to state whether or not what counsel term as a stringer and which are termed as joists, are all part of the floor, the underpart of the floor, or form the floor above the basement?

A. Yes, sir.

Q. Was it possible for you to climb out on those joists without taking up the planks that formed the floor?

A. Could not get at the joists ordinarily.

Q. Now, you stated, as I understood you, or at least the question was put as to whether or not this product without more had been bought and sold to your knowledge for a number of years under the name of Coca Cola. Now, did you or not mean to say that a product of this kind, or the constituent elements that was seized in this case, and about which this controversy arises, has been for a number of years sold as Coca Cola?

A. Yes, sir.

Q. A product that has got the same elements as this one here?

A. Formerly — the composition of it was different.

Q. I am asking you whether or not the composition, or a composition of this kind, with these same elements to your knowledge had been for a number of years sold as Coca Cola, or whether you know how that is?

A. Formerly as it was sold the product contained a certain amount of cocaine.

Q. Of cocaine?

A. Yes, sir. And this product also varies in composition, that is the preparation sold to the fountains is of a different constituency from that sold to the bottlers, it is not of uniform composition by any means, and then did you or not intend to state that a product was sold under the name of coca cola and did you state anything more as to its composition ——

Mr. Sizer (Interrupting): I object to what the witness may have stated — the statement is all before the jury.

The Court: If that is the only ground of objection I overrule it.

BY MR. MILLER:

Q. What did you intend to state by stating and by answering in the affirmative to adverse counsel that this product had been sold on the market for some twenty years?

A. A general product that had been put out — nothing specific.

Q. Did you or not mean to imply that it contained the constituents and the full constituents that are shown by the analysis of this product?

A. Advertised and sold over the entire period of its existence ——

Q. Now when was this cocaine taken out of it?

A. About 1893 or 1894, I don't know exactly.

Q. Now, as to the term "dope", where "dope" and coca cola were called for I will get you to state whether or not you have seen in response to these calls the emission from the same faucet by the dispenser?

A. Repeatedly.

Q. State whether or not that is usual and customary in this section of the country?

A. It was — up to a year or so ago — no, up to about a year or so ago both products were on the market. I have not seen the article known as "dope" on the market recently, but all calls for dope within the last year have come out of the same spicket that coca cola has come out of when called for.

Q. Now, state whether or not this dope was bought by the Coca Cola Company and utilized for its benefit?

A. I have heard so.

Mr. Sizer: I object to that.

The Court: The exception is sustained.

Mr. Miller: I wish to be heard a moment on that point.

The Court: He says he heard so, and I do not care to

hear any argument. I sustain the objection on the ground that it is hearsay.

Mr. Miller: I would be most pleased to submit to your honor that he was asked on cross examination as to advertisements. Advertisement is circulation of information — he was asked this question. I made a note of it: whether he had ever known of the Coca Cola Company advertising or putting on the market a product known as "dope" or that was called "dope." Now I propose to show that he has heard of such an advertisement, and that way that I can prove that is just in response to counsel's cross examination.

The Court: You may ask him if the Coca Cola Company advertised this product by the name of "dope" — you can't prove anything he learned by hearsay, and I sustain the exception.

Mr. Miller: I move then, may it please your Honor, to exclude adverse counsel's question which was in substance whether this witness had ever heard of the Coca Cola Company advertising or putting on the market a product known as "dope."

Mr. Sizer: I didn't ask him that.

Mr. Miller: I submit it was asked, and I move to exclude it.

The Court: I over-rule the motion. I don't think that question was asked. I have no recollection of any question being asked of that sort. My recollection is that the question asked was whether they had ever sold this product as "dope" and he was not asked whether they had sold some other product as "dope."

Mr. Miller: The advertisement was particularly asked about of this witness.

The Court: However, I do not see how that would be competent if it was some other product and some one bought it under the name of "dope," I don't see how it would have anything to do with this case.

BY MR. MILLER:

Q. These coffee extracts that you have referred to as being sold at fountains, do you know what they contain, did you ever analyze it or not?

A. No, sir, I don't know anything about its composition.

Q. Is there any uniformity or uniform glass in which this mixture of coca cola is served as to the size of the glass?

A. No sir, there are several sizes of glasses employed. Sometimes what is known as the seven ounce glass and

then there is another size glass used, the exact volume of that I do not remember, but it is very materially larger than the other. Frequently these larger sized glasses are used for the purpose of supplying these people who call for extra strong coca cola.

Q. State whether or not extra strong coca cola or words implying that is called for?

A. Yes, sir.

Q. What names are employed to call for extra strong coca cola when desired?

A. Well, "give it to me strong."

Q. Did you ever hear the term double header used in that connection?

A. Yes, sir, I have heard that name also, and it is sometimes called for by inference as this "I am way down, and out, I want a coca cola."

Q. Now, you were asked whether you — remembered the name of that man in Washington that took the syrup straight. Did you ever know his name?

A. No, sir.

Q. What would be the effect or the probable effect of taking a cup of coffee, containing caffeine, either one or more cups with meals, and then subsequently following that with one or more glasses of coca cola, as it is usually and generally served in Atlanta, and in other sections of the country, at the time of this seizure and immediately prior, that is doses of from one to one and a half or two ounces of syrup?

A. Why, the effects of the coffee would be multiplied immediately, and continued over a greater period of time, and coca cola acts more vigorously than coffee, that is cup for glass, or quantity for quantity.

Q. Now, what is the difference between free caffeine, if there be any, and caffeine that is found in the coffee bean?

A. The caffeine in the coffee bean is in combination with natural bodies present in the coffee, and in the form in which it is used in coca cola it is a free substance.

Q. State whether or not it has in that freed state when separated from the natural combination a more marked or quicker effect?

A. My experience is that it has a more marked effect and quicker.

Q. When you stated that deleterious results may not follow the taking of one or two or even three cups of coffee in a healthy or robust individual, state whether or not you intended to imply that the deleterious or injurious results

might not follow in the case of persons who were not of that robust type?

A. Usually and frequently it does follow in those individuals.

Q. In what class of individuals are the deleterious effects of caffeine the most noticeable and marked?

A. Children. Children from two years up to adult life; in women of a nervous temperament, and women during their periods of depression and in the unborn child that the mother is carrying.

Q. What proportion of the population of the United States is composed of women and of persons under the age of eighteen years?

Mr. Sizer: I object to that; he has not qualified as a statistician.

BY MR. MILLER.

Q. I will ask you, Dr. Kebler, and I will ask leave to recall him — we have the standard statistics here to show that — if you will ascertain for us the proportion of the population, according to the last census that constitutes all the children, that is between the ages of two and nineteen years, and all women, if you will obtain that and file it as exhibit No. 4 to your testimony?

A. I will try and get the information.

Mr. Miller: We have the statistical data, and I take it that we won't disagree about it.

Mr. Sizer: If the statistics are here, they are the best evidence.

Mr. Miller: I do not mean the records are in the court room, but I take it we can produce the volume of census reports, and then have him copy it.

The Court: I do not see that the question as to whether there are more women and children is very material; the jurors will know about that anyhow, but it will be all right to file it.

Mr. Miller: We will ask to have this filed.

BY MR. MILLER:

Q. Is there or not what is known as susceptibility or idiosyncrasies as respects caffeine that is noticed individually of various kinds?

A. Yes.

Q. What do you mean by that?

A. That is an individual is usually susceptible or acted upon more vigorously than an average individual. An average individual can take two or three grains of quinine sulphate without any trouble, and can take even more than

that, but other individuals who are particularly susceptible to quinine, are actually poisoned by a grain or a half grain or less.

Q. State whether or not the length of time for developing the poison incident to caffeine or any other drug depends upon the suceptibility of the individual, and the relative tolerance of his system?

A. Yes, sir, and on the rapidity of the absorption.

Q. What is the ultimate effect of the temporary advantage, if there be one, incident to the drinking of caffeine, and the stimulating of the brain or the nerve centers?

A. Oh, there may be a temporary effect of value and an advantage in the use of caffeine ——

Q. (Interrupting) But I say what is the ultimate effect?

A. (Continuing) And there may be a temporary advantage, but the ultimate effect is nervousness, the breaking down and sometimes — well nervousness and breaking down.

Q. In a majority of cases does a minute dose or any caffeine stimulate the brain and conduce to wakefulness and sleeplessness?

A. Yes, it does, particularly if taken in the latter part of the date.

Q. State whether or not that is universally recognized by the medical authorities?

A. Restlessness and sleeplessness are always conducive to the impairment of health, and so recognized by the medical profession.

Mr. Sizer: That would be evidence in chief and I object to it.

The Court: I am not ruling strictly on that just now, so long as I do not think either side does not go too far.

BY MR. MILLER.

Q. As to the quantity, state whether or not the most deadly poison may be taken in sufficiently minute particle so that there is no observable effect?

A. Yes, sir.

Q. As to these reported cases of death due to caffeine poisoning; state what was the condition of the heart as there reported, whether or not it was from contraction or expansion.

A. The observer reported the heart had very strongly contracted, so it was difficult to cut with a knife.

The Court: I will have to ask that the gentlemen refrain from comment or any gestures or anything of that kind; I must ask that that be strictly observed.

BY MR. MILLER.

Q. If a patient had died from disease in some of the cases in which he had been reported to have been suffering, what likely would have been the condition of the heart, would it or not have been in that contracted condition, that is as from pneumonia, nephritis and diphtheria?

A. Well, I am not in a position to answer that question.

Q. As to this case reported by Zenetz—that is a woman —I will get you to state whether or not it was reported that she was free from organic lesion?

A. That is the statement made.

Q. Is there anything in connection with that report to show that the woman was in anywise afflicted?

A. The statement there stated that she was not well, but was going about her duties.

Q. Free from organic lesion?

A. That would be the statement.

RE CROSS EXAMINATION,

BY MR. SIZER:

Q. Dr. Kebler, when did you analyze coca cola, and find that it had cocaine in it?

A. I did not analyze it to find cocaine.

Q. As a matter of fact you do not personally know that it had ever had cocaine in it?

A. Not from my personal analysis.

Mr. Sizer: I move then to exclude that statement of the witness made on re-examination that it at one time, coca cola, had cocaine in it.

The Court: The motion is sustained and that portion of the answer on re-examination is excluded. You understand, gentlemen of the jury, that heretofore whenever motions are made to exclude testimony and the Court sustains the exception and excludes it, that means you are to leave it out of your consideration and treat it as if you had not heard it — it is not legitimate matter to be considered by you.

BY MR. SIZER.

Q. You stated that on re-examination coca cola acted more vigorously than coffee.

A. Yes, sir.

Q. How do you know that?

A. From experience.

Q. On yourself?

A. Yes, sir.

Q. Is it true that coffee sometimes acts more vigorously

with certain people than tea does?

A. I couldn't answer; I am not in position to answer that question.

Q. Don't you know it to be true that some people are more readily affected by tea than they are by coffee, and vice versa?

A. I can't state that from my own knowledge.

Q. Well, isn't that a well known medical fact?

A. I don't know.

Q. You never heard of that sort of proposition?

Mr. Miller: I object to that statement as to whether he heard of that sort of a proposition.

The Court: The exception is sustained; let it be limited to the point as to whether or not he knows it or has seen it as a scientific statement.

BY MR. SIZER:

Q. It is true, doctor, there are a great many idiosyncraisies in the use of coffee and tea, and caffeine containing beverages, with respect to the effect they have on particular individuals?

A. I think I spoke about the idiosyncrasies.

Q. Isn't it true that the hot drink is absorbed more readily than a cold one, and consequently its effects are greater?

A. That is the general belief, yes.

Q. What is there in coffee that in any way modifies the effect of the caffeine in it?

A. I would like to explain that.

Q. Well, that is what I want you to do, go ahead?

A. Coffee, caffeine coffee, is in combination, the caffeine in it is, and associated with a considerable number of substances, some of which are gummy, and otherwise, and the coffee is introduced into the system at the time of the meals, or very often that way, and that retards the absorption of the caffeine, that is the rate of absorption. It is true when it is warm it may be absorbed more quickly, but in the case of coca cola there is present carbonated acid gas, and that has an effect; that effects the stomach by irritating it and causing the caffeine to be absorbed more quickly. The coca cola, on the other hand, is comparatively free, if not altogether free from these coalloid compounds or gummy substances that I have spoken of, and therefore the conditions are excellent for rapid absorption of the caffeine.

Q. The only effect in the difference of coca cola and coffee absorption in connection with which the caffeine is found in coffee would cause to tend it to be absorbed more

slowly than the caffeine in coca cola, is that it?

A. Yes, sir.

Q. Now, you were present at the examination of a number of experts whose depositions were taken on behalf of the government in this case?

A. Yes, sir.

Q. Those were all eminent scientists were they?

A. Yes, sir.

Q. And didn't they all testify that there was no difference between the effect of caffeine as taken in coffee and as taken in coca cola?

Mr. Miller: I object to that.

The Court: The objection is sustained.

Mr. Sizer: He has testified as an expert and I want to know what he has to say with respect to the correctness of that view.

The Court: A statement as to the testimony of other witnesses' testimony in this case would not be competent; you may ask him if he recognizes a statement in a standard work but as to the testimony of other witnesses it would not be competent.

BY MR. SIZER:

Q. In so far as any personal experience with the comparative effects of caffeine in coffee and coca cola, you speak from your own experience with the two substances?

A. Yes, sir.

Q. How much longer does it take you to absorb caffeine out of a glass of coca cola or feel the effects of a glass of coca cola, or how much sooner than the effects from coffee?

A. If I took coffee on an empty stomach it will take me from a half an hour to an hour to feel the effects of the coffee, whereas in the case of coca cola, the effect is experienced within fifteen or twenty minutes.

Q. Then, if experienced more quickly it passes off more quickly?

A. No, sir, it does not; that is just the difference. The point is simply this; the system is enabled to take care of a certain amount of this material and if it is introduced more rapidly than it can be handled by the system it produces more marked effects.

Q. Well, these effects last how long?

A. In which case?

Q. Well, in either case, take a cup of coffee or a glass of coca cola, how long will the effects as experienced from caffeine in these substances last?

A. In the case of coca cola the effect is much more marked and continues to about the same period of time as

in the case of coffee, but in the case of coffee the effect is much more milder because of the fact that the caffeine is absorbed freely.

Q. You say the effect is much more marked and that a man's mind is more strongly stimulated or muscles are more strongly stimulated if you take a drink of coca cola than a cup of coffee?

A. No, I may have the headache — take a cup of coca cola or a glass of coca cola and the effect in the coca cola is experienced in a comparative short time — it removes your headache more quickly than in the case of coffee.

Q. Does it stimulate your mind more strongly?

A. I am not prepared to say that it does.

Q. Its stimulating effect is not any greater than that of coffee?

A. I don't know about that; I am not prepared to answer that point.

(Thereupon, at two o'clock p. m., Court adjourned until nine o'clock Thursday morning, March 16, 1911.)

A. Yes, sir.

CHATTANOOGA, TENNESSEE.

THURSDAY, MARCH 16, 1911.

NINE O'CLOCK, A. M.

The Court met pursuant to adjournment.

Appearances, the same as on Yesterday.

PLAINTIFF'S EVIDENCE CONTINUED:

L. F. KEBLER,

resumed the stand for further

CROSS-EXAMINATION,

Mr. Sizer: We understood, your honor that they were going to put on another witness this morning. We have some data with respect to Dr. Kebler that we left over at the hotel.

Mr. Miller: We would be very glad to have Dr. Witherspoon follow; he is not in the court room.

The Court: You might proceed with the cross examination of Dr. Kebler and desist when Dr. Witherspoon comes.

BY MR. SIZER:

Q. Dr. Kebler, you referred on yesterday to a number of works which were works on toxicology, and which you said treated of caffeine. Among others there was Kionke; what nationality is he?

A. I don't know what nationality he is.

Q. Do you remember what language that work is written in?

A. German.

Q. The same author treats of lactic acid under the head of poisons?

A. Yes, sir.

Q. Lactic acid, that is in buttermilk, sour milk?

A. Yes, sir.

Q. He also treats of tartanic acid, that is an acid from grapes.

A. Yes, sir.

Q. And citric acid?

A. Yes, sir.

Q. And that acid is in lemons and oranges?

A. Yes, sir, and all are poisonous in large doses.

Q. In what doses?

A. Yes, sir.

Q. Now, Kobert is another one of the authorities you refer to?

A. Yes, sir.

Q. And he also treats of these same substances?

A. I don't remember now, he might.

Mr. Miller: If you will suspend, we will put Dr. Witherspoon on the stand.

Mr. Sizer: All right.

(Witness Excused).

EXHIBIT TO DR. KEBLER'S TESTIMONY.

JMD MARCH 17, 1911.

PERCENTAGE OF CHILDREN OF THE POPULATION OF THE UNITED STATES FOR THE YEARS 1880, 1890 AND 1900.

	1900	1890	1880
1 to 4 years	9.5	9.7	10.9
FROM 5 TO 19 YEARS, INCLUSIVE.			
5 to 9 years	11.7	12.1	12.9
10 to 14 years	10.7	11.2	11.4
15 to 19 years	9.9	10.5	10.0
Totals, both sexes	32.3	33.8	34.3

PERCENTAGE OF WOMEN OF THE POPULATION OF THE UNITED STATES FOR THE YEARS 1880, 1890 AND 1900.

1900	1890	1880
49.0	48.8	49.1

See Vol. II, p. III, Statistics of Population, Twelth U. S. Census for above figures.

JOHN WITHERSPOON,

the next witness called on behalf of the United States, of lawful age, first duty sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. Doctor, what is your profession?

A. I am a physician and surgeon.

Q. Are you a graduate of any institution of learning or medical student, and if so, what?

A. The Medical Department of the University of Pennsylvania in Philadelphia.

Q. Do you sustain any professional connection with any institution of learning, or teach medicine, and if so, what?

A. I am Professor of Practice of Medicine in Vanderbilt University at Nashville, Tennessee.

Q. How long have you been connected with that University?

A. Since 1895.

Q. And what has been your connection with that University?

A. The same chair.

Q. Have you had any connection with the State Medical Association for the State of Tennessee, and if so, what?

A. I am President of the Medical Association of the State, sir.

Q. Have you had any connection with the American Medical Association, if so what?

A. I have been a member of it eighteen years, and am on the Council for Medical Education for that Association.

Q. Have you had any connection with the Association of American Medical Colleges, and if so, what?

A. I have just retired as President of that Association.

Q. Now, are you a student of nervous diseases, and of the digestion, stomach trouble?

A. I studied all those diseases, I am a regular practitioner of medicine.

Q. How long have you been engaged in the actual practice of medicine, if you practiced it in connection with your teaching at Nashville?

A. About twenty-five years, since 1887, twenty-four years to be accurate.

Q. Where have you practiced medicine, that is at what places or points?

A. After leaving the hospital work, I first practiced for six or eight years at Columbia, Tennessee, and then moved to Nashville.

Q. Have you resided there since?

A. Ever since.

Q. I will get you to state whether or not you are acquainted with the substance caffeine.

A. Yes, I have used it medicinally.

Q. For what is it prescribed medicinally?

A. It is prescribed as a stimulant, primarily.

Q. A stimulant for what organs?

A. For the heart.
Q. Or organs?
A. For the heart.
Q. For the heart?
A. Yes, sir.
Q. Now, what effect, if any, does the administration of caffeine or the consumption of it, I should say, rather than the administration of it, the consumption of it in soft drinks such as Coca-Cola, assuming there is served from nine-tenths of a grain to one and a half or two grains of it per glass in six or eight ounces of carbonated water, what effect or more appropriately I should put it perhaps, how would that effect the nervous system?
A. I think one glass would have very little effect, more than a mild stimulant, I think it is the continued use that has the serious effect.
Q. How would that effect the nervous system?
A. It makes them very nervous, acts both on the brain and spinal cord by stimulating, over-stimulating the reflexes, stimulating directly the centers.
Q. Now, if at all, would consumption in that way affect digestion?
A. My experience with Coca-Cola has been that continued users of it are seriously impaired in digestion.
Q. Have you had experience of consumers of Coca-Cola, and if so, during what period of time?
A. I have noticed it some years, I should say five or six years. I do not know that my attention was called to it sooner than that.
Q. State whether or not you have treated any persons for the Coca-Cola habit or for the results of Coca-Cola using or consumption during that period, and if so, where you have treated them and how you have treated them, and how you found it affected them?
A. I found, sir, that young people especially soon formed the habit of taking this drink and after they get in the habit and commence taking several drinks a day—eight, ten, fifteen or twenty, some of them become extremely nervous, some of them do; one glass requires another and they become weak and the heart becomes rapid and irregular, and they really look like morphine habitues so far as their efforts to try to control it are concerned.
Q. Probably how many patients have you treated that have been afflicted with this Coca-Cola habit or trouble during the last four or five years?
A. I could not say. I have had three cases in the hospital that I have treated and tried to break it off. I have

had a number of cases, however; I could not say how many.

Q. Could you approximate the number, Doctor?

A. It would be a guess—thirty or forty, I didn't look up the record.

Q. What character of treatment did they require?

A. Very largely one to sustain the heart, and try to break the habit by keeping them away from it. I found that I had to lessen it gradually.

Q. Those persons that you placed in the hospital, state what the character of treatment—first, state whether or not you kept them under your supervision and that of a nurse in the hospital.

A. Yes, with a nurse.

Q. Did you see them frequently?

A. Yes, sir.

Q. What would be the course of treatment there in order to break them?

A. I found that it was necessary in one of these cases to let him have the Coca-Cola each day, just lessen it gradually just as I do with other drug habits. The other two cases, it is fair to state, had other troubles but they also had the Coca-Cola habit, which I found more difficult to handle than the other trouble.

Q. Now, in the case of these patients that were not actually sent to the hospital, what was the general course of treatment of them?

A. Well, each one of them—I worked on their feelings and did that by trying to show them or to force them to leave it alone, making them see that they were getting more and more in the throes of trouble all the time. One of these young men had previously lost his position in a store because he left and missed waiting on a customer to go out and get it and his employer dismissed him.

Q. As they would gradually give up this habit or you would break it, I will get you to state whether or not their health improved.

A. Yes, sir, they improved when they broke it up.

Q. What is the effect on the appetite? That is, the consumption of Coca-Cola, how does it affect the normal appetite?

A. Those who take large quantities of it lose their appetite usually. Of course, there are exceptions to that rule.

Q. State whether or not the consumption of it has a tendency to stomach disorder or to affect the stomach in any way, and if so, what.

A. I have thought that was so. I have seen a number

of cases in which nutrition was impaired, and they would have trouble in the stomach with more or less gastric trouble; that is, some irritation of the stomach that seemed to me to be produced by it, and they got better when I could stop the use of the drug or drink.

Q. What is the relative power of resistance in a person who is accustomed to taking Coco-Cola and in a person who is in his normal condition before he takes it or after he gives it up?

A. I think his resistance is very much impaired.

Q. During which period?

A. While taking it. I am speaking of the takers of large quanities, you understand.

Q. What do you say on the subject of one glass or one dose requiring another?

A. The action of it apparently is to boost them up and make them feel better and then the reaction is one of depression and they get very nervous and seemingly cannot do without it very well, sir. I have, in studying out their condition, I have found that it is like any other drug, that there is a demand for it.

Q. Do you or not regard it as a habit-forming drug?

A. I do, sir. I beg your pardon. I don't know whether you call it a drug or not. I think Coca-Cola, whatever it is—I never analyzed it—makes a habit.

Q. Do you or not regard caffeine as a habit-forming drug?

A. How is that?

Q. Do you or not regard caffeine as a habit-forming drug?

A. I do not know that I have ever known persons to become addicted to the use of caffeine, plain, Mr. Miller, but I have known them to become addicted to the Coca-Cola habit.

Q. Take these instances of where you have treated for the Coca-Cola habit; where were these persons served, and how did they receive this Coca-Cola which they used?

A. At the soda fountains and they bought it in bottles and took it to their rooms.

Q. Is that in the fountains in the city of Nashville, also?

A. Yes, sir.

Q. State whether or not it has been openly dispensed there in Nashville for several years at fountains and in bottles?

A. Yes, sir.

Q. Take persons of the character that you have described as being addicted to its use, and assume that

they were to get married and procreate. State, in your opinion, what would be the effect on the progeny, or the off-spring.

A. Of course, that question of heredity is very hard to decide, but I think that any man whose nervous system is rendered unstable or woman whose nervous system is rendered unstable, is liable to transmit that instability to her off-spring.

Q. Did you hear the testimony of Doctor Kebler yesterday as to the reported cases of caffeine poison, wherein he described the heart as hard, so that it could hardly be cut with a knife, in some instances?

A. Yes, sir; I heard that statement.

Q. Did you hear his statement as to the physical condition of those subjects, one, I think, being afflicted with pneumonia, I believe, and one or more, I think, with diptheria, and one or more with typhoid fever?

A. Yes, I heard the statements of Dr. Kebler.

Q. I will get you to state whether or not the heart, as described in the reported cases, the contracted heart, if the patient had died from the disease, independent of the caffeine poisoning, would have been in the condition that the reported cases described it.

A. Yes, sir. I must qualify that, however, by stating that I never held a post mortem on any death from caffeine, but that is the regular way in which they died, by contraction of the heart.

Q. If the patient had died of the disease, without the caffeine heart—that is, without the administration of caffeine—what would have been the condition of the heart in typhoid fever or diptheria?

A. Those cases of infected disease usually have a degeneration of the heart muscles, and it very likely would have been dialated—a flabby heart.

Q. By "flabby heart" you mean what kind of heart, Doctor?

A. Well, a heart that has lost some of its muscular integrity.

Q. Would it or not have been in that contracted condition that was described by the author there, or the person reporting the cases?

A. Would it have been?

Q. Yes.

A. In these diseases?

Q. Yes.

A. No, sir.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, how many cases are there you say you have treated for this what you call the Coca-Cola habit?

A. I do not know, sir, as I said. I could not tell you. I have seen, as I remember, three cases in which I had a great deal of trouble with them. I have treated a good many men coming to the office, more or less affected.

Q. How many cases did you say you had in the hospital?

A. I have treated three in the hospital.

Q. What were the names of those people?

A. I decline to give the names of the patients, sir.

Mr. Sizer: May it please your Honor, we want to get the names of those people to investigate those cases.

The Court: You answer that question.

The Witness: Will I have to answer and give him the names? Can I not give them to him privately, Judge?

The Court: Yes.

Mr. Sizer: That is all right.

The Witness: I prefer to do that.

The Court: You may do that.

BY MR. SIZER:

Q. What were the dates on which you treated those cases?

A. Well, the last case ——

Q. Commence with the first one of those.

A. Well, the first case was some years ago. That case must have been five or six years ago, and it was, as I said, that that case had other troubles.

Q. What other trouble?

A. Well, he was addicted to alcoholism also.

Q. Addicted to alcoholism?

A. Yes. I broke the alcholism before I did the cocai—Coca-Cola.

Q. What was the age of that man?

A. He must have been—well, I could not say—forty-five, maybe.

Q. Forty-five years old, and did he come to the hospital for treatment?

A. Yes, he came ——

Q. How long was he in the hospital?

A. Well, he was there possibly a month.

Q. Did he drink Coca-Cola while he was in the hospital?

A. We gave him some; yes, sir.

Q. How much did you give him?

A. Well, I do not recall now, sir. It was just enough to stimulate him.

Q. About how much per day would you give him?

A. I could not say, sir; maybe four or five glasses. I could not tell that.

Q. You gave him the carbonated Coca-Cola, did you?

A. Gave it to him in the bottle.

Q. In the bottle?

A. Yes.

Q. A bottle at a time?

A. Yes, sir.

Q. And you say you do not know how many bottles you gave him per day?

A. No, I could not tell you now, sir.

Q. Did you give him four or five?

A. Possibly so.

Q. You do not know how many he had been drinking prior to that time except from what he would tell you?

A. I do not know, sir; I could not tell you except just what he said.

Q. Do you know how much alchol he had been in the habit of drinking?

A. He had been drinking considerable alchol, sir.

Q. Did you give him alcohol also in the hospital?

A. After the first two or three days we were able to check that.

Q. You did not give him alcohol after the first two or three days?

A. No, sir. Well, I would say positively none.

Q. But you did continue to give him Coca-Cola for how long?

A. I guess a couple or three weeks.

Q. Then did he recover?

A. Well, yes; apparently he recovered. He was well, I think, about a year. He died of pneumonia about a year afterwards.

Q. Did you give him any tea or coffee while he was in the hospital?

A. I could not say; sir.

Q. You did not keep any track of the diet that he took there?

A. Oh, yes, sir.

Q. You don't know whether he had tea or coffee habitually?

A. Not five years from then, sir. I could not tell you that.

Q. Do you know whether or not he had been in the habit of drinking tea or coffee before he came there?

A. I could not say that.

Q. You could not say about that?

A. No, sir.

Q. Now, the next case: What was the date of the next case that you treated?

A. I guess it must have been three years ago, that next case.

Q. Was that a man or woman?

A. That was a man.

Q. Of what age?

A. I think he was about twenty-two or three.

Q. What was the matter with him when he came to the hospital?

A. He had gastric trouble. He had very bad catarrhal stomach trouble.

Q. Did you give him Coca-Cola while he was there?

A. He took some Coca-Cola; yes, sir. I don't know how much. But he insisted that he must have some at first, and I gave him some.

Q. You don't know how much you gave him per day?

A. No, sir, I cannot recall now. I think we have the record, however.

Q. As much as four or five bottles a day, do you think?

A. Possibly so. I could not answer that, sir.

Q. Doctor, what would be the result on the stomach of giving four or five bottles per day of a substance containing in each bottle about one ounce of a syrup of which 52 per cent. was sugar?

A. I could not catch that, sir. What was it?

(Thereupon, at the request of the witness, the stenographer repeated the pending question.)

A. I think it would be injurious to the stomach, sir.

Q. If a man's stomach was in a disordered condition and he took four or five bottles per day of a drink of that kind, the sugar would be likely to ferment in his stomach, would it not?

A. It would.

Q. And produce injurious effects in his stomach?

A. Yes, sir.

Q. Suppose the man took eight or ten or fifteen or twenty bottles or glasses a day of that kind of a mixture, containing that proportion of sugar, what effect would it have on his stomach? That is, the sugar in it?

A. Well, I think it would be injurious to the extent it would create fermentation, sir.

Q. That would be true regardless of what other substances might be in the drink?

A. I think sweets are injurious to the stomach taken constantly, sir.

Q. You do not know, of course, except from what that man told you, this second patient, how much Coca-Cola

he had been drinking a day?

A. No, sir; I have no idea.

Q. Had he been drinking alcohol?

Q. No, I don't think he ever drank alcohol.

Q. He drank no alcohol in the hospital?

A. No, sir.

Q. Of course you don't know whether he drank alcohol before he came there or not?

A. No, sir.

Q. Did he show any symptoms of having taken morphine, opium or cocaine?

A. No, sir.

Q. You said some of these patients did have symptoms such as would attend the taking of cocaine and ——

A. (*Interrupting*) What I meant by that is, sir, these boys who drink it and demand or desire it, are patients that are almost like those that have been taking that; in other words, always get nervous.

Q. This particular man, did he have any symptoms of a person who took ——

A. (*Interrupting*) No, sir he only had just general nervousness.

Q. And a disordered stomach?

A. Yes, sir.

Q. The other man, the third patient that you had at the hospital, what was the date of that case?

A. That is a case that is really on hand now. He is not in the hospital now but was there some months ago, something like that. He worked in one of our dry goods stores and got very nervous every time he would get out of the drug. In other words, in the midst of his treatment—in the very midst of waiting on customers, he would get nervous and go out to get a drink of this stuff, and ——

Q. (*Interrupting*) Do you know that, Doctor, or are you testifying from what he told you?

A. From what he told me.

Q. I am asking you only about your personal knowledge, and want you to confine your answers to that. When did this patient come to the hospital?

A. I saw him some—well, I don't know. It may be a month or so ago. I did not keep any record, sir.

Q. Did you give him Coca-Cola while he was there?

A. He is still taking Coca-Cola.

Q. How much did you give him in the hospital?

A. He must have taken ten or twelve glasses.

Q. Was his stomach disordered?

A. Yes, his stomach was very much disordered when he was there.

Q. And if it had not been disordered when he was there, when you gave him ten or twelve glasses of this sweet drink per day, it would have gotten his stomach out of order, would it not?

A. How is that, sir?

(Thereupon, at the request of counsel, the stenographer repeated the pending question.)

A. I could not answer that; I presume it would have disturbed his stomach if it had not been, but it was already disturbed, as I told you.

Q. Yes, and it would be somewhat more injurious to give him ten or twelve glasses per day of a substance containing that proportion of sugar, as indicated in the previous question?

A. I think sugar disturbs digestion; yes, sir.

Q. And the giving of that kind of drink in that quantity to a man whose stomach was out of order would be calculated to still further disturb it?

A. Yes, sir.

Q. Are those the only cases now that you treated in the hospital?

A. Yes, sir; the only cases I have ever had come under my care.

Q. The only cases you have had come under your care?

A. In the hospital.

Q. Now, have you had any cases to come under your care outside of the hospital?

A. Yes, sir; I have had several who complained to me. I did not see them drink it but they complained to me they were drinking it and could not do without it.

Q. This last case in the hospital, you don't know what other substances that man may have taken or drunk before he came there?

A. I could not say, sir, that he did not use or drink any other things. I did not see any manifestations of them.

Q. You did not know what these other people who came under your observation ate or drank except what they told you?

A. Except when they were under my care.

Q. How many of those were under your care and how many of those were there whose habits with respect to drinking Coca-Cola came under your personal observation, aside from these three?

A. I have seen some of them take drinks in the drug stores, of Coca-Cola. That is all.

Q. Well, take a drink occasionally?

A. Yes, sir; I did not see them except occasionally.

Q. You do not undertake to say how many drinks they may have taken a day?

A. No, sir.

Mr. Sizer: May it please your Honor, we desire to have you exclude the testimony of this witness given on his examination in chief as to the amount of Coca-Cola these different people drank, because of his statement that he knows nothing about it except what they would tell him.

The Court: I think the statement made by any particular patient is inadmissible, but I think the general result of the physician's knowledge acquired through the statements of the patients from time to time is admissible; but any particular statement given by any particular patient I think is inadmissible.

Mr. Sizer: That is what I am objecting to, the statements of these three persons as to whom he has testified specifically, and I move to exclude what he stated in his examination in chief as to the quantity of Coca-Cola those three patients took before they came to the hospital.

Mr. Miller: I submit that he made no statement on that subject until counsel called for it. I did not ask him that on examination in chief, and if it is insisted that I did, I appeal to the stenographic notes.

Mr. Sizer: I did not ask him how much he had been drinking, but he did state on examination in chief that these patients had been accustomed to taking eight or ten or fifteen or twenty glasses a day.

Mr. Miller: I submit that was not in the examination in chief.

Mr. Sizer: Do you agree that that is a fact, that he has not stated they took from eight to ten or fifteen to twenty glasses a day?

Mr. Miller: I do not agree that you did not call it out, but I say that if you called it out I object to your excluding it now.

The Court: Gentlemen of the jury, I instruct you that any statement on direct examination, brought forth by a question of Mr. Miller, if he made any such statement as to the amount these three people took before they came to the hospital, from what they told him, is excluded. Any statement brought about by Mr. Sizer on his examination is not excluded.

BY MR. SIZER:

Q. Now you say Doctor, that all drugs are habit forming?

A. No, sir, I did not say that.

Q. You didn't mean to say that all drugs were habit forming?

A. No, sir.

Q. What drugs are habit forming, in your opinion?

A. I think morphia, alcohol, cocaine, and those drugs and cannibis indica.

Q. Those are all now?

A. Yes, sir, as I stated to you, I thought this thing, this Coca-Cola was.

Q. Well now, you know that the drug in Coca-Cola is caffeine, don't you?

A. No, sir, not of my own knowledge.

Q. Do you class caffeine, Doctor, as a habit forming drug?

A. I have never thought so until I noticed it in this, sir.

Q. I want to read you now ——

A. (*Interrupting*) That is pure caffeine.

Q. I will read you a list, and will get you to state if this does not include all substances classified and known and called habit forming drugs: Alcohol, morphine, opium, cocaine, heroin, alpha or beta, encaine, chloroform, cannibis indica, chloral hydrate or acetanelid and its derivatives or preparation of any such substances contained; is that a complete list of all habit forming drugs?

A. As far as I know, I should say they were.

Q. Doctor, I want to ask you this question: Is it true that the contraction of the heart found after death might have resulted from a cerebral hemorrhage of the posterior or lower part of the brain?

A. Yes, it could occur, hemorrhage at the base would cause contraction.

Q. Do you know of any drug, Doctor, or did you ever hear or read of in any medical authority of a drug, the effect of which would be to contract the heart so that you could not cut it with a knife?

A. I don't know of any drug of that sort.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. Doctor Witherspoon, in these cases that were sent to the hospital, state whether or not any concoction or mixture was administered to them that contained any drug so far as you know, barring what you proved them, except Coca-Cola.

A. No, sir, not that I know of.

Q. Did you prescribe any other drugs?

A. Did I prescribe any other drugs?

Q. Yes.
A. While they were there?
Q. Yes, I men except to improve their condition?
A. No, sir.
Q. How was this Coca-Cola taken away from them?
A. Gradually.
Q. State whether or not that is the characteristic way in which opium and other habits are treated, and relieved.
A. It is, I try to take it off gradually; some people take it off suddenly.
A. I will get you to state whether or not the patients sent to the hospital, and also those that you treated outside of the hospital, you observed any general condition as to nervous symptoms, and if so, what?
A. They were very nervous and sleepless, disturbed a great deal.
Q. State whether or not the same general nervous condition prevailed?
A. Yes, sir, pretty much the same.
Q. Did you see any other manifestations or drug habit in any of these patients except the consumption of Coca-Cola, or the caffeine that was in it?
A. No sir; I did not.
Mr. Sizer: I object to that.
The Court: The objection is overruled.
Mr. Sizer: We take an exception.

BY MR. MILLER:

Q. Doctor, is there or not what is known as the alcohol habit?
A. Yes, sir.
Q. Is alcohol specified among the names in the list, or is it one among the number of drugs or any one of the derivatives that Mr. Sizer read you?
Mr. Sizer: I read it in the list.
Mr. Miller: Well, that is what I want to find out.

BY MR. MILLER:

Q. Is it recognized as a habit forming ingredient or drug?
A. Yes, sir.
Q. Now, assuming that caffeine was contained in this Coca-Cola mixture, and that it was composed of burnt sugar and caramel and some flavoring extracts, not containg any of the drugs or constituents that were read to you by adverse counsel, or any of the other derivatives, I will ask you if anything else in that mixture could have,

in your opinion, caused the acquired habit of taste for it except caffeine?

A. It would be the only one that I think of. I want to say that I do not know or do not regard caffeine as a drug forming habit.

Q. Is the taking of sugar or sweets, as contained in soft drinks, habit forming? And classed as a habit forming substances in any sense?

A. I don't regard it, although some people have a pretty sweet tooth.

Q. State whether or not the use of tobacco is habit forming.

A. Yes, sir.

Q. Are you or not prepared to say whether or not persons become accustomed to and form the habit of taking headache powder containing caffeine and tea.

A. Yes, sir, they take headache powders. Those things are very indefinite as to what is in them, I don't know half the time what is in them.

RE-CROSS EXAMINATION.

BY MR. SIZER:

Q. The headache powders you refer to, do as a rule contain acetanilide?

A. Yes, sir.

Q. Or some of the coal-tar derivatives?

A. Yes, sir.

Q. This word "habit" is somewhat of an indefinite term. isn't it Doctor?

A. I don't know.

Q. For instance, people very often get inthe habit of going to soda fountains and taking one or two or three glasses of chocolate soda a day?

A. Well, possibly.

Q. And they keep that up from day to day, that is true?

A. I don't know.

The Court: I don't think that is a matter for expert testimony.

Mr. Sizer: I want to get at what he means by the word "habit."

The Court: Well, you can just ask him that.

BY MR. SIZER:

Q. I will ask you, Doctor, you spoke of these people suffering from nervousness, you don't know how long they had been troubled with nervousness, do you?

A. Some of them I do not.

Q. Well, apparently they had suffered from it for some time?

A. That is very hard to answer, sir.

Q. Could you tell whether it was a recent case, or one of long standing?

A. I could not tell that.

Q. You have, Doctor, a great many cases of nervousness, and insomnia, and cases of that kind in which patients never claimed to have never taken Coca-Cola at all, haven't you?

A. Oh, yes.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Do you say that as to some of these persons you do not know how long they had been affected with nervousness. State as to the others if you have any personal knowledge that some of them had no manifestations of nervousness prior to a certain time before you began to treat them.

A. I don't think I could answer that, I don't know.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. You stated that you prescribed some other drugs to these patients in the hospital. What was that you prescribed to them?

A. It was strychnine, and things, trying to sustain them.

Q. You prescribed strychnine to all three of them?

A. I could not recall.

Q. You recall you didn't prescribe it to some of them?

A. Yes, sir; but whether to all, I do not know.

Q. Whether to all you do not remember?

A. No, sir; I do not remember.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Did they crave Coca-Cola, Doctor, or seem to want it from time to time, or call for it, those that were in the hospital?

A. Yes, sir; yes, sir.

Mr. Sizer: We want to get that list.

The Witness: All right sir.

The Court: That, by agreement, will not be published in the testimony.

(Witness excused.)

T. J. SEARCY,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Dr. Searcy, what is your profession?

A. I am a physician.

Q. From what institutions are you a graduate as a physician?

A. I am a physician and a graduate of the Medical Department of the City of New York, the University, of the City of New York.

Q. When sir?

A. In 1867.

Q. State whether or not you have had any experience in the active or general practice of medicine since that time, and if so, for how long.

Q. Why did you retire from active practice in 1892?

Q. Well, where did you reside during that period?

A. I resided in Tuscaloosa, Alabama.

Q. Where do you reside now?

A. I live there, or near there, in the suburbs.

Q. Why did you retire fro mactive practice in 1892?

A. I was appointed Superintendent of the Alabama Insane Hospital.

Q. Superintendent of what?

A. The Alabama Insane Hospital.

Q. The Alabama Insane Hospital?

A. Yes, sir.

Q. State whether or not since that time the State of Alabama has built a second hospital for the insane.

A. In 1901 they built another hospital for the colored patients.

Gen. Cox: A little louder, Doctor.

BY MR. MILLER:

Q. Are you not now and have you been since the second hospital was built, Superintendent of both hospitals?

A. Yes, sir.

Q. I will get you to state whether you are a member of the American Medical Association.

A. Yes, sir.

Q. What connection, if any, have you sustained to the State Medial Association of Alabama if there be one?

A. There is a State Medical Association, and I have been all the time, or almost all the time, from a few years from the beginning, I have been a member, and at one time president, and have held other offices, Auditor, and things of that kind.

Q. State whether or not you are on any examining board.

The Court: In the preliminary questions, Mr. Miller, I think you may lead the witness.

BY MR. MILLER:

Q. I will get you to state what your connection was

with the State Examining Board.

A. I was on the state Examining Board.

Q. You are a member of the American Academy of Medicine?

A. Yes, sir.

Q. Are you a member of the Medical Physiological Association?

A. Of the Medical-Physiological Association.

Q. Of America?

A. Yes, sir.

Q. Medical-Psycological Association?

A. Yes, sir; composed of hospital superintendents.

Q. State whether or not the class of persons who come to your hospital for treatment, any portion of them, are of a nervous temperament.

A. A very large proportion have more or less impaired nervous systems, and that is the reason they are sent to the hospital.

Q. How many people are in the hospital, Doctor?

A. There are twenty-one hundred and fifty in the two hospitals in round numbers, close to that number today, I don't remember exactly.

Q. During the time of your connection with these hospitals, state whether or not it has been a part of your duty and if you have spent much time in observing the patients therein, and inquiring into the reason and causes of their demented condition.

A. I, of course, inspect one part or the other of either of the hospitals where I am, every day, I am inspecting them, it is impossible to be there, it is impossible to get around to the hospital in Tuscaloosa every day, so I take part of it at a time, and inspect every day, one time I observe the men, one day, the next day possibly the women, and go through every day, through the wards.

Q. Do you or not inquire into their history?

A. Yes, sir, that is a part of my business, to try to find out what occasions their condition.

Q. State whether or not the inmates of the Insane Asylum under your care, are on the increase or decrease.

A. Well, I beg your pardon.

Q. Please state whether or not the inmates of those institutions are on the increase or decrease.

A. They are rapidly on the increase.

Q. State if you had occasion to investigate the growth and population of the State of Alabama as compared with the increase in these asylums.

A. During the census reports of the last census just closed in 1910, the state population increased about six-

teen per cent., and the admissions into the insane asylums of the State increased about forty-five per cent. within that same time.

you to ascertain as to the drug habit diseases that come

Q. State whether or not any inquiry has been made by in these insane hospitals. State whether or not you know about that.

A. Why, the habitues who have reached such a degree of nervous impairment so as to bring them within the cognizance of the law so as to have them sent to the hospitals, about five per cent. of them who come are called drug and drink habitues.

Q. Is that class of habitues on the increase or decrease.

A. Well, that is my opinion, I think it is on an increase?

Q. Now, as to this——

Mr. Sizer: I don't think that his opinion on a question of fact of that kind, is admissible.

Mr. Miller: That is the only way to get it.

The Court: Unless he is basing it on information from facts of his own observation. He can state what he knows from facts of his own observation.

Mr. Sizer: He has answered that it is a matter of opinion.

The Court: What do you make that up from, that opinion.

The Witness: My opinion is based on the fact that I think they are coming in in greater numbers.

The Court: Are you uncertain about it?

The Witness: No, sir, I am quite certain about it that they are increasing.

Mr. Sizer: I don't think that is competent, it is merely his opinion as to the question of facts.

The Court: Well, I think it is a summation of his observation. Proceed Mr. Miller.

BY MR. MILLER:

Q. Doctor, in the treatment of these habitues, drug habitues, that come into the hospital at Tuskaloosa——I will get you to state first how you go about your treatment, whether or not the drug is withdrawn from the habitues gradually.

A. Our rule is to withdraw it at once unless clinical charts or reports show some reason for giving some.

Q. Is there or not a craving for the drug by the habitue or subject, if withdrawn?

A. All drug habitues have impaired nervous systems

which renders them so that they feel bad unless they are drugged again, and when you withdraw it, of course, they feel bad, and if they know they can get more they feel more comfortable.

Q. State whether or not you have observed that these habitues as this drug is withdrawn will partake freely of Coca-Cola, or if they will go after Coca-Cola or go to stands nearby and get it. Tell the result of your observations in that respect.

A. I cannot say of my own observation—I cannot say that my own observation extends very far. I don't have direct care or prescribing for or treatment of the patient. There are five other physicians in the hospital at Tuskaloosa and three at Mount Vernon; I have general supervision and my observation——

Mr. Sizer: Now, I object to that. I want him to tell just what he has seen.

The Court: Do not tell what you get by reports from other doctors.

The Witness: I can have no personal observation in the matter.

BY MR. MILLER:

Q. Are there or not any soft drinks or Coca-Cola stands nearby?

A. There are some small grocers that sell it close by.

Q. You say you have no personal observation as to those persons going there to these drug stores?.

A. No, sir.

Mr. Sizer: I object to his cross-examining the witness. He has already stated ——

BY MR. MILLER:

Q. State whether or not caffeine in your opinion or from your observation is a habit-forming drug or one that conduces habit-forming, and also what its effect on the nervous system is.

A. The use of most of such drugs is to impair the nervous system so as to make a person with repeated use feel bad, and he knows he can take more and feel better. He must be relieved by it. In that way it is what I consider to be a habit—an impaired nervous system from chemical action of these drugs upon the nerves and brain. He gets the habit. The habit consists in the fact that the man knows he can take more to relieve him.

Q. Is or not caffeine in your opinion a habit-forming drug?

A. Yes, sir; in that sense I think it is.

Q. What is its effect on the nervous system, how does it affect it?

A. Just as I say, it chemically acts upon the nerves and sensation and consciousness, and renders a man so he feels or is able to feel more comfortable—when he does not have it he feels worse, and he knows he can take some more and relieve it.

Q. I will get you to state whether or not Coca-Cola is as manufactured by or as labeled and sent out by the company in Atlanta and its branches, is sold freely and dispensed freely throughout the state of Alabama.

The Court: I take it there is no question about that.

Mr. Sizer: No.

Mr. Miller: I didn't know that was conceded. If they concede it is in the state of Alabama where this man gets these patients from, I withdraw the question.

Mr. Sizer: Well.

Mr. Miller: You may cross-examine.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, suppose a man gets hungry, he wants something to eat?

A. Yes, sir.

Q. And if he eats something he feels better?

A. Yes, sir.

Q. Therefore food is a habit-forming substance?

A. No, not in the sense I see it, for it is called for from all over his body, every nerve cell has to be supplied with food.

Q. And when he takes it he relieves that sense of discomfort that comes from the demand for the supply necessary to every nerve cell in the body?

A. Yes, sir.

Q. It is habit-forming to the extent that a man gets in the habit of taking it to relieve hunger?

A. He takes it.

Q. He takes it?

A. Yes, sir.

Q. And he relieves that hunger?

A. Yes, sir.

Q. And a man may get in the habit of taking a particular kind of food, may he not?

A. Yes, sir.

Q. A man may form the habit of eating eggs for breakfast, for instance, and he may not feel right unless he does those things, that is a habit, is it?

A. It is the constant performance of his—in that sense it is a habit, but not a habit in the way I defined just a moment ago.

Q. A man gets in the habit of taking a cup of coffee for breakfast?

A. Yes, sir.

Q. That becomes a habit in the same sense, does it not?

A. Not in the same sense in my understanding.

Q. Let me ask you this: Suppose a man gets accustomed to the use of coffee, say he takes one, two or three cups a day, is it as a general rule that when he gets accustomed to a certain quantity per day that he will go and take that same quantity day after day and year after year without any desire to increase the quantity except on special occasions?

A. It depends on the man.

Q. Well, in the majority of cases, is that the rule?

A. Well, each man has peculiarities of his own. He has his own nervous system and he is more or less affected by such agents.

Q. Yes.

A. If he gets into the habit, that is, if he has acquired the use of coffee, if he don't get the coffee he is impaired so he feels discomfort when he don't get it, and he takes it.

Q. Well, Doctor, what I am getting at is this: Is it true that a man who gets accustomed to the use of coffee or of tea or of chocolate or of any of these caffeine containing substances, the rule is he wants a quantity that he is accustomed to taking, is that not true?

A. Yes, sir; but he continually increases it, the quantity from day to day.

Q. You say he increases it?

A. I think the rule is that he wants to increase it if he keeps it up long, in order to relieve his discomfort.

Q. Is that your personal experience?

A. No, not my own personal experience, but from observation.

Q. Do you use coffee?

A. Very little, indeed.

Q. About how much a day?

A. I have not taken any in six months, hardly.

Q. You don't use it except rarely.

A. No, sir.

Q. Do you take tea?

A. Less than I do of coffee.

Q. Do you drink chocolate?

A. No, sir.

Q. Or cocoa?

A. No, sir,—I say I don't drink it, I occasionally might when it is brought to my table and I may take some then.

Q. And so far as your personal exxperience goes you don't know very much about it?

A. No, sir, not in my own experience.

Q. Do you know whether coffee and tea and chocolate are served to the inmates of your hospitals?

A. Yes, sir. I try to dilute them as much as I can.

Q. How much do you give those patients a day?

A. They have a cup of ordinary coffee and in order to dilute it we mix it with chicory which gives it a different color, and in order to get rid of the toxic effect of caffeine we have adopted that course.

Q. Well, you give them coffee, do you?

A. Yes, mixed with something in order not to keep up the coffee habit.

Q. How much do you give them a day?

A. About thirty pounds a day.

Q. But how many pounds to the man or how many ounces to each individual?

A. I could not tell you, but it would be very little; to some more and to some less.

Q. These patients are people—a great many of them—crazy people, suffering with nervous diseases?

A. Yes, sir.

Q. And you give it to all of them indiscriminately?

A. To those who want it. There is such a demand for it, it is such a popular water we give it to them ——

Q. (*Interrupting*) Have you had any experience, observation or otherwise with respect to the use of chocolate or cocoa?

A. In what way do you mean, upon myself?

Q. Yes.

A Chocolate or cocoa?

Q. Yes.

A. But very little.

Mr. Miller: I object to that; it is foreign to this inquiry.

The Court: Until it is shown they contain caffeine it is ruled out.

Mr. Sizer: Dr. Kebler admitted there was a trace in it.

The Court: Not enough to make it material.

BY MR. SIZER:

Q. Do you know, Doctor, how much caffeine is contained in chocolate?

A. No, sir.

Q. Well, you know that it contains caffeine?
A. I don't know it; I have heard it did.
Q. You have heard it contained caffeine in the same way coffee and tea did?
A. I have heard it contained much less.
Q. However, you do not know what the proportion is?
A. No, sir.
Q. How about the cocoa nibs, do you know how much they contain?
A. No, sir.
Q. Or the cocoa shells or nibs?
A. I don't know what is meant by that.
(Witness excused.)

DR. L. F. KEBLER,
resumed the stand for further examination.

CROSS-EXAMINATION continued

Mr. Miller: As to the previous examination, I move to exclude the question and answer as to the substances which have been referred to because they are not a matter of controversy here at all, whether text writers included those or did not include them in the matter of toxics, I submit is immaterial.

The Court: I did not catch the point of the exception.

Mr. Miller: Adverse counsel has asked as to certain substances such as certain kinds of acids extracted from grapes and other substances, and has asked whether or not certain text writers lay down these particular substances—etc., that ——

Mr. Sizer: (*Interrupting*) We didn't ask him that. that.

Mr. Miller: You asked if these particular substances were reported as poisons.

Mr. Sizer: I did not even ask him that; I asked him if they treated of those particular substances.

Mr. Miller: If you limit it to that I submit that it is immaterial whether they treated of it or not. They are not shown to contain caffeine.

The Court: I think you are relying on the inference that it is caffeine from the fact that it is treated in the works on toxicology ——

Mr. Miller: We did not call that out. We did not go into that—and your Honor held we could not. As I understood your Honor's ruling it was that a witness on cross-examination might be challenged as to his opinion based on learning and observation by production of text writers, and they produced them, and now they propose to impeach them.

Mr. Sizer: No, we are not. We want to show their connection with other substances these writers treat of——

The Court: You were simply asking him on cross-examination, to test his statement that caffeine was a poison, to name text writers—you asked that. I do not think that it warrants you to go further as to what other things the text book writers also included as poison.

Mr. Miller: I object to it.

The Court: The objection is sustained.

Mr. Miller: I move to exclude the testimony.

The Court: It is excluded.

Mr. Sizer: It is competent for us to show the connection in which these writers speak of caffeine.

The Court: You are to bring out, yourself, these text writers mention caffeine.

Mr. Sizer: We asked him on what ground he based the statement caffeine was a toxic substance, and I submit in further cross-examination I have a right to go into details of these writings, as to what these writers say about it, and in what connection they treat.

Mr. Miller: Counsel asked what writers named this as a toxic.

The Court: I adhere to the ruling.

Mr. Sizer: We ask further to have these books. I submit that the best evidence of what the books contain are the books themselves. I submit I am entitled to have the authorities on which the witness bases his statement.

Mr. Miller: We stated that we would give the cases such as we have.

Mr. Sizer: Unless your Honor will give us leave on examination of our witnesses to offer these same books and to rebut the inference that Doctor Kebler's testimony might leave——

The Court: (Interrupting) You asked him to name the books and he has named them. If they are willing to hand you those books I think that is sufficient. I cannot go on the inference they are in the possession of the witness.

Mr. Miller: They are in Mr. McConville's room and he will get them.

Mr. Sizer: The introduction of the books will not do any good unless we can examine the witnesses about what the books state and we do not care for the introduction of them to read them for our own information, and our object to get them into this court is for further cross-examination of the witness.

The Court: If you found anything in these books contrary to the opinion expressed by this witness that caffeine

is a poison, you may cross-examine him about that, and ask him if these books contain these contradictory statements, but going to the question of what other things are included or not included is beyond the limit of the cross-examination as I view it, and I adhere to my ruling.

Mr. Miller: The books were at the hotel all day yesterday for the use of the council on the other side, and likewise for the use of their experts. We will be pleased to submit them, but we are under obligations to return them. I will say now they will be there after the adjourning hour this afternoon.

BY MR. SIZER:

Q. I believe you stated yesterday. Doctor Kebler, that there was a trace of caffeine in chocolate and coca.

A. Yes.

Q. Is it not a fact that there is 28-100th of 1 per cent. caffeine in chocolate?

A. I have—that might be true in some specimens, yes.

Q. You are familiar with the work by Leach, I suppose, on food inspection and analysis, are you not?

A. I am very well familiar with it; yes, sir.

Q. That is recognized as a good authority, is it not?

A. A good publication; yes, sir.

Q. Was not Leach an employe—was not Mr. Leach the chief of the Denver Food and Drug Inspection Laborotory, Bureau of Chemistry, United States Department of Agriculture?

A. He was.

Q. Now, I will ask you——

A. (Interrupting) Let me answer. I know all about that and can answer all the questions.

Q. What does Mr. Leach say about the percentage of caffeine in chocolate?

A. It varies from nothing up to, say, a quarter to one-half per cent., depending entirely on what you mean by chocolate, whether you mean a cup of chocolate or the solid product, or what not.

Q. I am talking about the chocolate that is used in making the beverage, and used in making the soda fountain syrup.

A. I did not understand what you meant.

Q. Does not that contain 28-100ths of 1 per cent. of caffeine?

A. It varies, as I have stated, from nothing up to——

Q. (Interrupting) Then that is not a very definite substance, according to your idea?

A. I do not know what you mean by a definite substance.

Q. Well, if the chocolate contains amounts of caffeine varying from nothing up to 28-100ths of 1 per cent., it is not a definite substance?

A. No plant drugs are absolutely definite. They all vary in the percentage content of the various constituents.

Q. The roasted coca nibs—what are roasted coca nibs?

A. They are simply coca beans roasted.

Q. Containing the chocolate, the same substance that is contained in the commercial chocolate?

A. Yes.

Q. They contain 73-100ths of 1 per cent. of caffeine, do they not?

A. I believe that report is made, yes. I do not know from my own knowledge.

Q. This chocolate and coca is used extensively in the manufacture of candy?

A. Yes.

Q. That is consumed by men, women and children of all ages, sizes, conditions and color?

A. Yes.

Q. It is used also in the manufacture of soda fountain beverages?

A. Yes.

Q. And the manufacture of the hot drinks—chocolate and cocoa?

A. The two drinks, you mean, together?

Q. Chocolate, sometimes called chocolate and sometimes called cocoa, is it not?

A. Yes.

Q. It is substantially the same thing?

A. No, not substantially the same thing.

Q. Wherein is it different?

A. The chocolate contains a considerable portion of fat, whereas the cocoa contains very little fat.

Q. They both contain the chocolate, however, the base of the chocolate bean?

A. No, I would not say they contained the base of the chocolate bean.

Q. Do they contain anything from the chocolate bean?

A. Yes,—oh yes.

Q. Both of them do?

A. Yes; what I said a moment ago.

Q. Is it not further true, Doctor, that coffee, tea and chocolate are all furnished by the National Government as part of the rations to the soldiers, sailors, inmates of the soldiers' homes, and of other national institutions?

A. I have heard so. I do not know from my own knowledge.

Mr. Miller: I object to what he has heard, your Honor please.

BY MR. SIZER:

Q. You do not know that of your own knowledge?

A. No, sir.

Q. Did you testify on yesterday, Doctor, that caffeine in coffee is not free?

A. Part of it may be free and part may be a combination, or associated in loose combination.

Q. You say it may be. Do you know whether it is free or in combination?

A. A recent writer has said it was not in combination, but that is only one authority.

Q. Personally, do you know how it is?

A. It is in part combination and part free. That is my experience.

Q. How do you know that?

A. From examination.

Q. Have you analyzed it?

A. Coffee?

Q. Yes.

A. Yes.

Q. You mean now the coffee bean, or the infusion of coffee that is taken as a beverage?

A. I am talking about the coffee bean.

Q. The coffee bean?

A. Yes, sir.

Q. When the coffee is roasted and made into an infusion the caffeine is freed, is it not?

A. To a large extent.

Q. Is it not entirely freed?

A. I am not prepared to say that.

Q. You are not prepared to say that any of the caffeine is in combination with any other substance in the coffee drink as a beverage?

A. Not as a definite composition that we can isolate the way we can isolate chloroform.

Q. Are you prepared to say it is in combination in any way.

A. Yes, I consider it is in loose combination with the acids present in the coffee.

Q. With what acid?

A. Sometimes called caffetannic acid.

Q. What is the proportion of caffeine in combination with caffetannic acid?

A. In the coffee as it is prepared in cup form?

Q. Yes, as taken as a beverage.

A. I think most of it is in very loose combination with those products.

Q. Do you know?

A. Yes.

Q. You say you think. Do you know that is a fact?

A. I have to think before I can answer.

Q. Do you undertake to state that as a fact that the caffeine in the coffee taken as a beverage is in combination with caffetannic acid?

A. As a theoretical proposition I would say it was.

Q. I am not asking you about it as a theoretical proposition. Now, you stated a while ago you analyzed it.

A. Yes.

Q. Do you undertake to say from the analysis you have made that the caffeine in coffee when taken as a beverage is in combination with caffetannic acid?

A. In making my exxaminations, I always treat it in such way as to eliminate the caffeine from its combinations.

Q. Then it was liberated when you analyzed it?

A. When I began the operation it was necessary to liberate the caffeine from its combination before it could be separated from its products.

Q. Do you never find any caffeine in combination with caffetannic acid in any analyses you made of the beverage coffee?

A. Yes. I stated before the caffeine could be separated it had to be—I mean, before the caffeine could be taken out of the substance in toto it had to be liberated from its combination, however weak that combination may be.

Q. You stated a while ago that the caffeine in the coffee taken as a beverage was practically all free, did you not?

A. In a loose sense of the word; yes.

Q. In what sense is it not true?

A. In the sense I have just indicated.

Q. What is caffetannic acid, anyway?

A. It is a form of tannin that is found and peculiar to the coffee bean.

Q. It is a form of tannic acid that is found in coffee, is it not?

A. In the coffee; yes.

Q. In the coffee bean?

A. In coffee.

Q. In what way is the caffeine combined now with the tannic acid in coffee?

A. A loose chemical combination. Caffeine is the base and the acid, the caffetannic acid, acts as an acid.

Q. In your process of analysis, however, you first treat the infusion so as to release the caffeine and take it out free?

A. That is the usual process.

Q. Did you ever try it the other way?

A. I have.

Q. And did not get the caffeine?

A. I got some of it out.

Q. How much did you get out?

A. A goodly proportion.

Q. What per cent.?

A. It would vary with the conditions under which it was made.

Q. What was the largest per cent. you ever got out?

A. Of the total quantity present?

Q. Yes.

A. I have gotten eighty per cent. out.

Q. Eight?

A. Eighty per cent.

Q. Did you say on yesterday, Doctor, that the effect of caffeine would be lessened when taken on a full stomach?

A. Yes.

Q. As a matter of fact, do not the authorities hold that the effect is least when taken between meals, neither on a full nor an empty stomach?

A. I do not know such an authority.

Q. You do not know an authority that holds that?

A. I do not know any, no.

Q. Are you familiar with the work by Hutchinson on food and digestics?

A. I am. I have read it.

Q. That is a good authority, is it not?

A. Oh, yes.

Q. I have read this work now, on page 317, this extract:

> "On the whole, the effects, that is of tea and coffee, are probably less when the stomach is neither quite empty nor too full, but contains a moderate amout of easily digested food, a state of things which, one is glad to say, is pretty well true at afternoon tea."

Do you agree with that statement?

A. The stomach is neither entirely empty nor too full?

Q. Yes.

A. I think that is all right.

Q. Such, for instance, as prevails when tea is taken at an afternoon tea?

A. It depends entirely on when your afternoon tea is taken.

Q. Between meals the stomach is neither empty nor full, it it?

A. That depends entirely on the condition of the individual.

Q. And depends entirely on the length of time between the meals?

A. Yes.

Q. As a rule, the stomach is never entirely empty until about the time to take a run in, is not that true?

A. I don't think the stomach is ever absolutely empty where there is marked purging and vomiting, certain poisonous conditions, and in cases of pregnancy where there is abnormal vomiting.

Q. What do you say about caffeine being modified by colloidal substances in coffee?

A. I said that caffeine, when introduced into the stomach in conjunction with or in the presence of colloidal substances, or dummy material, that the caffeine is absorbed less rapidly.

Q. What are the colloidal substances in coffee?

A. Albumenous material would be considered one. All abbumenous material would be of that class, and dummy matter in the coffee, even fat, fatty material, would be classed under bodies of that character.

Q. And so caramel is the colloidal substance, too, is it not?

A. There is some in there; yes.

Q. And there is caramel in Coca-Cola also?

A. Yes.

Mr. Sizer: I think that is all, your Honor.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. Does the caramel that is found in Coca-Cola naturally unite with the caffeine, as the caffeine is naturally united with these other substances that you have described in coffee?

A. Oh, no; no.

Q. Caffeine is free in the Coca-Cola absolutely?

A. Yes.

Q. Now, as to Hutchinson's statement where he describes the condition of the stomach as to how full the stomach is, state whether or not that depends on how

much meals you eat and how long before you have eaten them.

A. Yes.

Q. Why is it, if you know, that Hutchinson refers to the most favorable time, or rather, the least injurious time when caffeine can be taken as being the time when the stomach is not entirely empty and not too full?

Mr. Sizer: I object to that, your Honor.

The Court: The objection is sustained.

BY MR. MILLER:

Q. I ask you whether or not, from the context as read to you by adversary counsel, you understand why it is that Hutchinson advocates the taking of caffeine when the stomach is not empty and not too full.

Mr. Sizer: I object to that.

The Court: The exception is sustained.

Mr. Miller: We respectfully note an exception.

The Court: The exception may be noted.

BY MR. MILLER:

Q. Doctor, have you ever made an analysis of Coca-Cola yourself?

A. No, sir; except in part. I have determined the presence of certain constituents but never made a quantitative analysis.

Q. When was that analysis made that you did make?

A. Oh, I made it three or four years ago, and I have tested portions of the material from time to time; but just determined the sugar or flavoring matter, or products of that type.

Q. Taking the analysis as given by Doctor Fuller on the witness stand, I will ask you if there is any other habit-forming agent or ingredient in Coca-Cola except that of caffeine.

A. I know of none.

Mr. Sizer: I object. He says he made no analysis of Coca-Cola except to determine certain flavoring extracts.

Mr. Miller: My question was, taking the analysis as given by Doctor Fuller on the witness stand—this man has qualified as an expert on toxics and drugs.

The Court: Did you hear Doctor Fuller's statement as to what was contained in Coca-Cola?

The Witness: Yes, sir.

Mr. Sizer: May it please your Honor, the witness has not testified that caffeine is a habit-forming drug yet, as I understand. I do not recall that he was asked about that subject. I object to the form of that question.

The Court: The exception is sustained.

BY MR. MILLER:

Q. I will ask you whether or not in your opinion caffeine is a habit-forming drug.

A. I so consider it.

Q. Now then, taking Doctor Fuller's statement as given on the witness stand as to the contents of Coca-Cola, I will ask you whether or not there is any other substance, agent or constituent of Coca-Cola, that would be habit-forming, except caffeine.

A. I know of none.

Q. Did I understand you to say that you had never made a certain kind of analysis? What analysis was that, that you did state that you had never made such a one, yourself?

A. A complete quantitative analysis.

Q. Did you make a quantitative analysis of the product that was seized in this case?

A. No, sir.

Q. Did you ever make a complete analysis of any Coca-Cola mixture?

A. No, sir; not personally.

Q. You are not prepared to say as to what the constituents of it have been for a number of years past?

A. I know what ——

Q. (Interrupting) I mean, of your personal knowledge.

A. I know what the major portion of the constituents have been and are, or are, as to their presence, but not as to their quantity, from my own examination.

Q. Now, from your own examination, what are the major portions of the constituents that you know of?

A. Sugar, water, caramel, caffeine and flavoring agents. Those are the only ones I have detected—that I have determined.

Q. And you made your determination first when?

A. I made that examination probably four years ago.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor, on what do you base the statement that you consider caffeine a habit-forming substance?

A. General observation.

Q. You do not base it on your own experience?

A. No.

Q. You do not base it on any medical authorities?

A. I do not think that I can cite any at present.

Q. Do you base it on any definite experiments you have made?

A. No.

Q. You base it then simply on observations you say that you have made from time to time of people in the habit of taking a caffeine-containing substance?

A. Yes.

Q. And those observations you have detailed fully on your examination in chief on yesterday?

A. I don't know about that.

Q. Did you not, in reply to questions by counsel for the Government in this case, state on your examination in chief on yesterday the observa,tions that you had made with respect to the use, for instance, of Coca-Cola?

A. Yes, stated part of my observations; yes.

Q. Have you made any other observaitnos, in addition to those already testified about, on which you base the statement that you consider caffeine a habit-forming substance?

A. Generally—I have met with persons—well, I may make that general. That is my general observation. Probably I covered it yesterday.

Q. I want to know specifically whether you have made any other observations on which you base that opinion, any other than those you testified to on yesterday.

A. I would like to have that testimony read, if it will be necessary to make it absolutely explicit. I do not remember it in detail.

Q. Do you now recall that you ever made any other observations on the subject that would induce you to form or express that opinion, aside from those you testified about on yesterday?

A. I do not know.

Q. You think that the use of caffeine-containing substances induces to the formation of a habit? That has been your experience, hasn't it?

A. Generally, yes.

Q. What do you mean by "habit," in this case?

A. Habit-forming, as I construe it, is a condition that is brought about in the system by the use of a chemical which, after continuing it a period of time, will leave such an impression upon the individual that when that chemical is withdrawn the system feels the need of it. For example, if a person is doing heavy mental work and he gets a headache and goes out and gets a headache powder which contains caffeine and other agents, and then he continues at work, the conditions are continued next day, he will be compelled to take another one, and so it goes on

and the ultimate result is that he will be compelled to take that mixture day after day in order to relieve the condition which is, in part, induced by the drug itself.

Q. I read you a list of articles from the eighth section of the Pure Food Act and ask you if those are what are commonly known and understood in scientific circles as habit-forming substances: Alcohol, morphine, opium, cocaine, heroin, Alpha or Beta cocaine, chloroform, cannibis indica, chloral hydrate, acetanilid and the derivatives and preparations of such substances.

Mr. Miller: Your Honor please, this word "commonly" injected there, I object to. This inquiry is not as to what is "commonly" known. If this question is pertinent at all, it is as to what are habit-forming drugs, and not as to what is commonly understood by habit-forming drugs.

The Court: I overrule the exception, the way that question was asked. You may answer the question.

The Witness: Those are the drugs enumerated in that Food and Drugs Act.

BY MR. SIZER:

Q. That was not the question I asked you, Doctor.

A. I will explain; I just wanted to get the point clear.

Q. I stated in that question that they are the articles enumerated in the Food and Drugs Act. Now, I ask you if those are not articles commonly known by scientific people as habit-forming drugs.

A. By scientific people?

Q. Yes.

A. Oh, there are a great many more.

Q. That does not include, then, in your opinion, all of the habit-forming drugs?

A. Oh, no.

Q. What other habit-forming drugs are there, not included in that list?

A. Antipyrin.

Q. That is a coal tar derivative, is it not?

A. Yes. And sulphonal, and tyronal.

Q. Are those coal tar derivatives?

A. Aspirine.

The Court: Those are included, are they?

Mr. Sizer: Yes.

The Witness: No, they are not included, Aspirine, I said; I did not say acetanilid—I said aspirine.

BY MR. SIZER:

Q. Iknow, but are they not all derivatives or preparations of coal tar substances—acetanilid?

A. I wish they were.

Q. In what respect do they differ from acetanilid?

A. Absolutely different. They may be derived from certain coal tar products, but that does not make them derivatives of acetanilid.

Q. Go on now and name any others in additions to those you have already named.

A. Well, of course that question of derivatives does not enumerate the specific substances, unless they are such as paraldehyde, ether and chloroform.

Q. Chloroform, did you say?

A. Yes.

Q. Chloroform is mentioned in the list.

A. That is right. Phenacetine.

Q. That is a coal tar product, is it not?

A. Yes.

Q. Is it not a derivative of acetanilid?

A. I so consider it.

Q. You need not mention any of those that are derivatives of any of these substances that I have read to you.

A. That is the only way the information could be given out.

Q. Ether is a derivative of alcohol, is it not?

A. It is.

Q. Therefore that is included in the list I read.

A. Not by name.

Q. I did not say included by name, but I am asking for any habit-forming substances not included in this list, which list expressly says, "Any derivative or preparation of any such substances," contained in the list.

A. Yes. I think there are a number of others that ought to have been included there.

Q. Now, I want all others.

A. I have named some of them.

Q. Are there any others now?

A. Caffeine I consider.

Q. How is that?

A. Caffeine I consider.

Q. Anything else?

A. Bromoform.

Q. What is that?

A. Bromoform.

Q. Yes.

A. That is wood alcohol in which the three atoms of hydrogen are replaced by bromine.

Q. Is it a preparation from alcohol?

A. Yes.

Q. Then that is already in the list?

A. It is not enumerated.

POOR COPY

Mr. Miller: I beg your pardon. That is not in the list. That says: "Derivative of alcohol."

Mr. Sizer: "Any derivative or preparation."

The Witness: Oh, yes. That is a preparation of alcohol, a derivative of alcohol.

The Court: Just omit those preparations and derivatives and we will save time by stating the others.

BY MR. SIZER:

Q. I am asking you to state the other habit-forming substances.

A. That is all I recall now.

Q. How many of those that you have stated are not derivatives or preparations from substances included in the list?

A. I have been enumerating them. I do not remember all of them now.

Q. Do you remember a single one that is not a derivative or preparation from these substances, except caffeine?

A. Yes, caffeine, antipyrine, tyronal, sulphonal and aspirine.

Q. These are all coal tar products?

A. They are commonly so-called.

Q. Is not tryonal an alcohol derivative?

A. Not under this law, as we have considered it.

Q. I am not asking you about the law. Is it an alcohol derivative?

A. I do not consider it so.

Q. Is that a coal tar product?

A. In the broad sense of the word, yes.

Q. You were asked on re-examination whether the caramel in Coca-Cola was combined with the caffeine. As a matter of fact, the colloidal bodies in coffee, as taken as a beverage, are not combined with caffeine, are they?

A. No.

Q. Assuming that to some extent caffeine and caffetannic acid are combined in coffee as taken in the form of a beverage, is it not true that the caffeine is separated from the acid by the hydrochloric acid in the stomach?

A. That is probably correct.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. You were asked for a list of medical authorities, and you stated you could not cite any at present. I will get you, if you can, to investigate and file as an exhibit to your testimony, calling it Exhibit A, a list of any med-

3699

ical authorities that you were asked to file and which you state at present you could not point out.

Mr. Sizer: I did not ask him to file any medical authorities.

Mr. Miller: You asked him to cite them.

Mr. Sizer: I asked him if he knew any medical authorities who classified caffeine as a habit-forming substance and that is as far as I went.

Mr. Miller: That is not as far as he went; he said at present he could not cite any. Now, I ask the privilege at least to have him file and cite, if he can, those that he can, after looking at the books. Of course a man cannot cite the page of a book here.

The Court: I think the cross-examination was merely to test his knowledge and I don't think he can supplement that knowledge by further research afterwards.

Mr. Miller: I am not an exception.

The Court: The exception may be noted.

BY MR. MILLER:

Q. You were asked as to whether any other substances were habit-forming except those named in that Food and Drugs Act. Now, aside from those which you enumerated that were in addition to those names read to you, I will ask you whether or not arsenic is a habit-forming drug.

Mr. Sizer: What is that?

Mr. Miller: Whether or not arsenic is a habit-forming drug.

A. Well, it may be to a certain extent by people who use it in the Alps for support and sustenance in their work.

Mr. Sizer: I want to object to Mr. Miller leading the witness.

The Court: I do not think that is leading—whether or not.

BY MR. MILLER:

Q. I will ask you whether or not nicotine is a habit-forming drug.

A. Oh, yes; there is no doubt of that.

Q. Are either arsenic or nicotine derivatives of the substances that were read to you by adversary counsel?

A. They are not.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. Arsenic is not what is generally known and classed as a habit-forming substance is it, Doctor?

A. No.

Q. And nicotine is not found in foods, strictly speaking, but is the alkaloid that is found in tobacco, is it not?

A. Yes.

Q. And in no other substance that the human being takes, is it?

A. Not to my knowledge.

Mr. Sizer: That is all.

The Witness: If the Court please, I would like to make a statement in conjunction with an answer I made yesterday.

The Court: You may do that.

The Witness: Which was to the effect,—the question was to the effect: "Is it not a fact that a very large proportion or a very much larger proportion of caffeine is used in the form of beverages than in the form of drugs?" I will answer that question "No" upon reflection.

BY MR. SIZER:

Q. How did you answer that question yesterday?

A. I think I answered it "Possibly."

Q. How did you come to change your mind about it?

A. I was reading my testimony over to-day, this morning, and I happened to notice it and from my knowledge I found I was in error.

Q. Do you know the quantity of caffeine that is consumed in the form of tea and coffee annually?

Mr. Miller: I submit that is immaterial.

Mr. Sizer: I want to find out. He says now he has changed his mind and I want to know how far he knows about that.

Mr. Miller: I still submit that is incompetent.

The Court: I really do not see the relevancy of this whole question. You are getting into pretty collateral matters, gentlemen, I think.

(Witness excused.)

DR. LOUIS LE ROY,

of lawful age, was produced as a witness by and on behalf of the Government, and having been first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor Le Roy, where do you reside?

A. In Memphis, Tennessee.

Q. State where you were educated and what your profession is.

A. I am a physician. I graduated in medicine in Philadelphia, from the Medical Chirurgical College.

Q. How long have you been practicing medicine?

A. Since 1896.

Q. What connection have you with the state medical association?

A. I am a member of the state medical association.

Q. What connection have you with the state board of health of Tennessee?

A. I am vice-president, at the present time.

Q. State what professorships or chairs you have filled in connection with Vanderbilt or any other university.

A. I held the chair of Pathology and Bacteriology in Vanderbilt for a number of years. At present I have the chair of Practice in the University of Memphis.

Q. Is that Vanderbilt University located in Nashville?

A. At Nashville; yes, sir.

Q. Did you hold any position in the State of Tennessee, and if so, for how long?

A. I was a State Bacteriologist of Tennessee for a number of years; eight or ten.

Q. State whether or not you are now engaged in a general practice?

A. Yes, sir; I am.

Q. Have you had occasion to study and investigate as to nervous and stomach troubles?

A. Yes, sir.

Q. I will get you to state whether or not you have had any experience with Coca-Cola, what is generally known and sold on the market as Coca-Cola, in the city of Memphis.

A. Yes, sir.

Q. And prepared and sent out by the Coca-Cola Company of Atlanta.

A. I don't know about that. I know about the Coca-Cola as it is labeled and dispensed.

Q. In the City of Memphis?

A. Yes, sir.

Q. State whether or not you have ever consumed any of it yourself?

A. Yes, sir; I have.

Q. And what was your personal experience with it?

A. The first experience I had with it was ten or fifteen years ago, when I first tried it. They had some little soda fountain stand opposite my laboratory. It was in the summer time and I started to drinking some of it there and I suppose I drank half a dozen or so bottles a day, and I found very soon I would have to leave it alone.

Q. Why so?

A. I got nervous and could not do—my hand got trembling and I could not do fine work, and I realized something

was doing it and I found out it evidently was the substance I was drinking.

Q. When you quit consuming Coca-Cola what was the result as to your nervous and physical condition? Did it improve or otherwise?

A. Did you say before——

Q. (Interrupting) No, when you ceased and left it off.

A. Oh, I straightened out in a day or two all right.

Q. State whether or not Coca-Cola, from your personal experience with it, was habit-forming.

A. Well, it tended to make me want more, for the time that I used it. I never got into a definite habit, because I only used it for a week or ten days, and then found out it was not doing me any good, so I let it alone.

Q. Have you had occasion to treat any persons who were confirmed Coca-Cola habitues or consumers, since that and from that date down to the present, in your practice?

A. I frequently had patients who were using a good deal of it, they told me.

Mr. Sizer: I object to what the patients told him.

The Court: I think that he can state as to the general results of the patients' experiences and statements made to him by his patients, where he has treated people using Coca-Cola. I think it has come to the point where information a physician has received becomes part of his knowledge.

BY MR. MILLER:

Q. State in a general way whether or not you have had occasion to treat users and consumers of Coca-Cola.

A. I have had occasion to treat patients who were users of it.

Q. State whether or not you have seen them use it, and consume it at the fountains.

A. Yes, sir; I have. I have taken some with them probably.

Q. State the condition of those patients; that is, as to their nerves particularly.

A. As a rule they were nervous and irascible, and as a rule, or frequently, statements would be made at the time that: "This stuff is getting on my nerves," or something of that kind.

Mr. Sizer: I object to that.

The Court: Yes. You can eliminate that. The exception is sustained as to that statement.

BY MR. MILLER:

Q. Eliminate what they said as to the condition of

their nerves but state what you found as to the condition of their nerves.

A. I observed they were more or less shaky and somewhat nervous.

Q. As they would give up the use of Coca-Cola, if they did give it up under your direction and treatment, state whether or not their nervous condition would improve.

A. Generally, yes.

Q. Were those people, generally speaking, afflicted with any other habits? That is, did they habitually use any other drug except Coca-Cola?

A. Not that I know of.

Q. What was the effect on you, if it had any effect, when you would take a bottle or glass of it near the evening meal, as to sleep?

A. I cannot take it at night, it keeps me awake. I took one bottle of it a year or two ago when I was convalescing from typhoid fever and it kept me awake for forty-eight hours or more.

Q. Speaking from your experience, you yourself and your patients, state whether or not the use of Coca-Cola induces sleeplessness and wakefulness.

A. It is very apt to.

Q. State whether or not,—or did I ask you, as to whether or not the use of Coca-Cola was habit-forming? If I did not, I ask it now.

A. It has a tendency that way.

Q. In what class of persons are the habit-forming propensities most marked?

A. In neurotic—nervous, patients. And nervous women, especially—probably.

Q. Is that class of persons as a rule as capable of resisting the habit or the ravages of habit-forming drugs as persons who are in robust health?

A. Nowheres nearly; no, sir.

Q. Did you hear the reading of the reported cases of deaths due to caffeine poisoning, as given in evidence yesterday by Doctor Kebler, where the contracted heart was described?

A. Yes, sir; I heard it, most of it, I think.

Q. State if the persons—that is, the number of those persons that were reported to have been afflicted with diseases, leaving out the young women that was not afflicted, those that were afflicted with typhoid fever, pneumonia or diptheria,—if they had died of those diseases and without the effects of caffeine on the heart, whether they probably would have had the heart manifestations that were described by the author of those treatises.

A. If they had simply died of a poisoning from the diseases as mentioned, the ordinary course of the disease, the heart would have been found relaxed and more or less flabby. The heart was described as being very much contraced and systolic. Caffeine might have been responsible for that, but there are some other drugs which might have also been responsible for the heart being firmly contracted after death.

Q. Caffeine might have produced that condition?

A. Yes, sir.

Q. State whether or not you have made frequent post mortem examinations.

A. Yes, sir, I have made a great many of them.

Q. What is the effect of the taking of caffeine on the human system, as regards energy which is stored or generated?

A. It seems to enable the body to utilize more energy that it could otherwise utilize. A man can put forth more effort and sustain it a little longer under the action of caffeine than he could without it, but that excessive work is at the expense of his reserve energy.

Q. In a person of normal health, is there or not a force prepared by nature called reserve energy?

A. Yes, sir.

Q. State whether or not you have studied bacteriology.

A. Yes, sir, a good deal.

Q. Were you ever a Professor of Pathology, they call it?

A. Yes, sir, for a number of years in Vanderbilt.

Q. State wheather or not you teach bacteriology also.

A. I have charge of the laboratory.

Q. I will get you to state if you ever held any position in the City of Nashville.

A I was city bacteriologist for a while there.

Q. Now, assume that Coca-Cola is made of simple syrup in which there are several flavoring extracts, and a large proportion, something like fifty or fifty-two per cent. of sugar, and the sugar and water are put in a kettle in one portion of the factory, a room in one corner, and that the sugar is dumped in there by a negro, or a white man for that matter, who is hardly clad, expectorating tobacco on the floor, there are no cuspidors, expectorating on the floor of the platform from which the sugar is dumped, and that occasionaly sugar will lodge on the platform, that the man who dumps it in is inclined to kick it with his toes, and the toes of his shoes are out exposing his bare feet and other employes in the factory building perspiring freely, and clad about as I have described, and there is on

the floor of that factory building a toilet that is ventilated from the inside of the factory, not from the outside, and this syrup consisting of sugar and water, as I have described, is at the boiling point at that place, and it is then drawn down into cooling tanks, or first into the mixing tank, into the basement below, that the floor of the basement where the mixture is brought to the boiling point is overhead of the ceiling portion of the basement below, and that after this mixture is brought to the mixing tank there is mixed with it flavoring extracts as I have described, including a per cent. of caffeine, varying from nine-one hundredths grain to one and twenty-one hundredths grain, and that after the mixture is—well, this per cent. of caffeine, I should have stated is in each ounce of the mixture—then, that after the material is complete, it is placed in settling tanks, or cooling tanks, that they are suspended from the over-head ceiling of the basement which forms the floor of the first room, and that these tanks are near enough to the outside so that a man from the outside could reach fromthe outside and put his hand in some of them, that the outside of this factory adjoins a street along which street cars are from time to time passing and that a basement floor which is of concrete, contains holes in which water gathers and stands, and that the basement floor is drained by a sink in the center which connects with the sewers of Atlanta, and assuming that there are overhanging spider webs, and the windows of this building and basement floor of the building on the sides connecting with these streets are open and are drawn by a cord or mechanistreets are open and are drawn by a cord or mechanical cal devices, that there are about eighteen inches to feet drawn back like a transom, allowing the air to come in from the outside, the product is allowed to cool in that way, that after that time there is a careful analysis made of ten gallons of that mixture and that there are found in it a bee and remnants of insects—I will get you to state whether or not that product or mixture was damaged or inferior as compared with one that is made under more favorable sanitary conditions.

Mr. Sizer: I object to the question being put in that way. This witness qualified as a bacteriologist, and he can ask him whether there would be any germs in it, that would be proper, and I would not object to it, but the question whether it would be damaged or inferior, is not a question that he is qualified to pass an expert opinion on.

The Court: The exception is sustained. It is a question for the jury under the charge of the court ——

Mr. Miller: I note an exception.

BY MR. MILLER:

Q. State whether or not the mixture prepared in that way would be likely to contain germs.

A. It is practically certain to contain some.

Q. And if a bee, or other forms of animal life were found in it, such as I have described, would it or not, in your opinion, render the product of an inferior character?

A. I think it would .

Q. You think it would?

A. Yes, sir.

Mr. Miller: You may cross-examine him, Mr. Sizer.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, is there anything on the face of this earth that has not got more or less germs it it?

A. Some things, I suppose.

Q. The air is full of it?

A. Yes, sir; there is some in the air.

Q. And the water is filled with it?

A. Hardly full, it contains some.

Q. Your hands have germs all over them?

A. Yes, sir.

Q. You breathe them in and swallow them into your stomach every minute and every hour and every day?

A. Yes, sir.

Q. Doctor, are there disease producing germs that could live in a solution of sugar?

A. For a reasonable time.

Q. Well, how long?

A. Hours, probably.

Q. For an hour?

A. Hours.

Q. How many hours?

A. It depends upon the concentration of the sugar, but I would not be surprised to see some of the living ones live twenty-four hours, and the sphores will last a long length of time, for years.

Q. Suppose the solution contained fifty-two per cent. solution of sugar, would it, I mean any germs, live in it?

Q. I could not say definitely as to the hours, because they are various kinds of organisms, no two of them would be killed within the same length of time, so far as the spohres are concerned, they would live indefinitely.

Q. Would there be any sphores or bacteria live in that

except such as were harmless and would not produce disease?

A. In the sugar?

Q. Yes.

A. Several of them which form sphores could stay in there indefinitely.

Q. What kind of germs, or sphores or producing, disease-producing sphoes, will live more than a few hours?

A. Lockjaw and other anthrax, those are the first two that suggest themselves to me.

Q. Those are all?

A. The only two I think of at the moment.

Q. Have you ever made any personal investigation as to how long disease-producing germs will live in a solution of this kind?

A. No, sir.

Q. Then you do not base your statement on any personal investigation of your own?

A. Not on that one point.

Q. Now, then, to go to your personal use of Coca-Cola, I believe you say at one time you took half a dozen bottles a day; for how long was that?

A. For a week—no, two weeks or ten days.

Q. And at the end of two weeks, you don't think it was doing you any good, or you didn't think so, and you quit it?

A. Yes, sir.

Q. How much alcohol were you taking at that time, Doctor?

A. None whatever, I don't use it at all.

Q. You don't use it?

A. No, sir.

Q. Were you taking tea and coffee?

A. No, sir.

Q. Neither one?

A. No, sir.

Q. Did you ever use tea or coffee?

A. Coffee, seldom tea.

Q. You were not using coffee during the two weeks you took the Coca-Cola?

A. No, sir, I was not at all, I had not used it for over a year, I was in training, and for athletic reasons left it alone.

Q. Then you were taking Coca-Cola as a substitute while you were undergoing training?

A. I took it because I was thirsty and it was hot weather and Coca-Cola tasted good.

Q. And at that time, you were undergoing training for

some athletic feat?

A. Yes, sir, getting into shape.

Q. What kind of an athletic performance?

A. Canoe racing.

The Court: Well, I think that is immaterial, Mr. Sizer.

BY MR. SIZER:

Q. You remember about the date when you took that Coca-Cola?

A. I assume it was along about in 1897.

Q. Well, was that the bottled Coca-Cola?

A. Yes, sir.

Q. 1897; do you mean 1897 or 1907?

A. No, I think it was before 1900. I won't make that statement positively, but I think that was when it was, and I think it was the bottled stuff.

Q. That is the only experience you have had with the use of it?

A Yes, sir, for any length of time. I took Coca-Cola, drank it—I mentioned one other instance, when I had typhoid, it kept me awake

Q. How many patients have you treated that you personally knew to be consumers of Coca-Cola?

A. I could not say, it is a very common drink, and it is a very common occurence to hear the thing mentioned by people.

Q. I am not talking about what was said to you. Did you have any personal knowledge as to how much any of your patients took per day?

A. No, sir; I have not.

Q. Your testimony then, to the effect that Coca-Cola is habit-forming is based on your personal experience, it it?

A. Yes, sir, and reports given to me.

Q. And reports given to you?

A. Yes, sir.

Q. And aside from your personal experience, you have nothing on which to base it except reports?

A. Statements of people who claimed to have been using it.

Q. You do not know of any medical authorities that treat of caffeine as a habit-forming drug?

A. I don't believe I can recall any.

Q. You say that one time when you had typhoid fever, you drank some Coca-Cola?

A. Yes, sir.

Q. And were kept awake by it?

A. Yes, sir.

Q. Is insomnia a common sympton of typhoid fever?

A. Well, it had not been in my case, I had slept all the way through.

Q. Isn't it a sympton that frequently develops in typhoid fever?

A. Yes, sir, but this was not during the typhoid, it was during the convalesence. I was over the fever, I did not have any fever.

Q. You took this Coca-Cola during the convalesence?

A. Yes, sir.

Q. Do you very often find contraction of the heart from rigor mortis after death?

A. Not what we call contraction. I make a distinction between hardening of the muscle and contraction.

Q. The heart is hard from rigor mortis after death?

A. No, sir, not very hard.

Q. Well, would that depend on the length of time after death that the autopsy was performed?

A. Yes, sir.

Q. Would it be harder if the autopsy was performed at a certain time than if earlier or later?

A. Yes, sir.

Q. In the particular cases referred to, the periodicals about which you were asked on examination in chief, do they give anything to show the length of time after death that the autopsies were performed?

A. I did't hear anything bearing on the subject.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. State whether or not the physician attending the holding of the autopsy, is better prepared to speak, and is always so recognized by medical men, as to the conditions and causes of death, than any other person, and that medical students and physicians all accept their statement.

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: We take an exception.

BY MR. MILLER:

Q. Now as to sphores, what do you mean by sphores, Doctor?

A. Sphores are certain resting kinds of bacteria in which condition they can withstand adverse environments which would kill the ordinary bacteria. You might say that they bear the same relation to bacteria as seeds bear

to plants. That is a rough illustration.

Q. As to the patients you have treated for Coca-Cola habit, state whether or not you have seen them partake of it.

A. Yes, sir; I have a few times.

(Witness Excused)

GEORGE R. STEWART,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. You are George R. Stewart, are you?

A. Yes, sir.

Q. Where do you reside, Doctor?

A. Cleveland, Tennessee.

Q. How long have you lived in this section of the country, Doctor?

A. I have lived at Cleveland about twenty-five years.

Q. In what are you engaged, Dr. Stewart?

A. I am engaged in the ministry and on the lecture platform.

Q. How long have you been thus engaged?

A. Since I was nineteen years of age, I have been a minister. I am fifty-three; fifty-three from nineteen would give it.

Q. How long have you been engaged in traveling and lecturing?

A. I should say about twenty years on the lecture platform.

Q. State the nature of your travels, that is, where you have been, in what sections of the country, and how frequently, during the last ten or fifteen years.

A. Well, I have been over the United States, I have covered the United States about once a year, practically. I go from Maine to California and from Maine to the Gulf. For the past two weeks, I have been from Lansing, Michigan, to St. Petersburg, Florida.

A. I will get you to state whether or not you lecture in the night or the evening, Doctor?

A. Usually at night; in the evening it is called in the North, at night in the South.

Q. And after your lecture, state whether or not you are accustomed to visiting drug stores and soda fountains where Coca-Cola is dispensed.

A. I go to drug stores, to the soda fountains, usually

after speaking at night, for a glass of lemonade, that is all that I take there.

Q. And that is usually about what hour of night, Doctor?

A. Somewhat varies, owing to the exercise I am in. Sometimes it is ten o'clock and sometimes it is ten-thirty; sometimes I go towards the train and drop in at eleven or twelve o'clock.

Q. I will get you to state what you have observed during those hours in the evening, or night, as to the sale and consumption of Coca-Cola.

A. Well, I am a pretty close observer of the actions of young people, that is my work, and I have observed in the drug stores a very abundant sale of Coca-Cola.

Q. At the hours you have stated?

A. At all hours at which I have attended drug stores.

Q. State whether or not there has been any discrimination to your knowledge, in the sale and consumption of it as between older persons and very young persons.

A. I never noticed anything of that kind.

Q. State whether or not you have observed children drinking it and calling for and being served Coca-Cola indiscriminately?

A. I have observed that frequently.

Q. Down to what ages, Doctor, have your observations in that respect been made?

A. Well, I don't know that I ever noticed a child that I would consider under ten or twleve years of age.

Q. At that time of the night?

A. Well, no, I would not say that I have seen children late at night—younger boys and girls and other ages later at night. I have seen children in the afternoon.

Q. Have you had occasion to observe the evidences of Coca-Cola on humanity after being consumed?

A. I have had occasion to note one particular effect—

Mr. Sizer: (Interrupting) May it please your Honor, I will object to the testimony of the Doctor as to the effects he may have observed for the reason that he has not qualified as an medical expert, and is not competent to testify on that point.

Gen. Cox: Suppose he is speaking as to the physical effects, as to what he saw.

Mr. Sizer: He might testify to something having an effect which is purely a coincident, unless he is an expert.

Mr. Miller: If counsel is unwilling for Dr. Stewart to tell about that, or other instances, we will simply withdraw it.

Mr. Sizer: I do not think that a play of that kind is

called for or is proper before the jury.

Mr. Miller: I would be very glad if he would permit the Doctor to answer that question, and not only that but other questions ——

The Court: (Interrupting) The question is objected to and withdrawn.

Mr. Sizer: Do you withdraw that question, Mr. Miller?

Mr. Miller: Yes.

Mr. Sizer: Then I withdraw the objection.

The Court: Well, proceed with the examination of the witness.

Mr. Sizer: That is all, Doctor.

(Witness Excused).

Mr. Miller: I will now read the deposition of Hugo DuBois, which is as follows:

HUGO DuBOIS,

the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. What is your business and where do you reside?

A. Chemical business, I reside in New York City.

Q. In what particular department of the chemical business are you engaged?

A. We have a great many departments, but principally the Textile and Pharmaceutical Departments.

Q. Are you engaged in this business as an individual or in connection with a corporation?

A. In conection with a corporation.

Q. And what is the name of the corporation?

A. The Roessler & Hasslacher Chemical Company.

Q. And what official position do you hold in that corporation?

A. I am one of the directors and secretary of the company.

Q. For how long have you been connected with the company?

A. Since 1897.

Q. Does your company sustain any relation, contractural or otherwise, to the Coca-Cola Company of Atlanta, Georgia, of which Mr. Asa G. Candler is president, and to the Alkaloid Works of which Mr. Lewis Schaefer is president, and if so, what?

A. We act as selling agents of the Schaefer Alkaloid Works, for a number of articles that they manufacture, and

as such agents, have contracts with the Coca Cola Company.

Q. You handle several products that are produced by the Schaefer Alkaloid Works?

A. Yes.

Q. Their plant is at Maywood, New Jersey?

A. Yes, sir.

Q. Among other products produced by the Schaefer Alkaloid Works is that of Merchandise No. 5?

A. Yes, sir.

Q. Is that product received by your company direct from the Schaefer Alkaloid Works?

A. Yes, sir.

Q. And then what is done with it?

A. It goes into our warehouse and from our warehouse it is being shipped out to different branches of the Coca Cola Company; that is to their different branches.

Q. That shipping is done under and by virtue of an arrangement with the Coca-Cola Company?

A. How?

Q. That shipping out from your warehouse is under and by virtue of an arrangement and contract with the Coca-Cola Company of Atlanta?

A. Yes.

Q. From whom are remittances received for shipments made?

A. From the Coca-Cola Company.

Q. Does your company supply to the Coca-Cola Company any other produce of the Schaefer Alkaloid Works except Merchandise No. 5, and if so, what?

A. Caffeine.

Q. State whether or not there is added to the caffeine or to the Merchandise No. 5 after it is received by your company and before the shipment to the Coca-Cola Company, of its various branches any other ingredient, composed or substance of any kind?

A. There is not.

Q. Is it treated in any way by your company after being received from the Alkaloid Works before shipment?

A. Not at all.

Q. Then the fact is that Merchandise No. 5 and the caffeine as received by your company from the Schaefer Alkaloid Works are shipped in the same state and condition as when received?

A. Exactly.

Q. In other words, your company simply acts as the selling and distributing agents of these products?

A. Yes, exactly.

Q. And in addition it handles several other products that are manufactured by the Schaefer Alkaloid Works?
A. Yes.

CROSS-EXAMINATION.

BY MR. HIRSCH:

Q. Mr. DuBois, in what sort of receptacles do you receive Merchandise No. 5?
A. In barrels.
Q. Are those barrels sealed?
A. Those barrels—what do you mean by sealed?
Q. I mean is there any way by which they could be identified by any mark the Schaefer Alkaloid Works puts on them?
A. Yes, they are marked "Schaefer Alkaloid Works."
Q. Is that mark removed?
A. No.
Q. And it is sent in the same identical receptical you receive it?
A. Yes, receive it in that shape and ship it in the same way.

Q. Is the caffeine also marked?
A. Yes.
Q. No changes in any manner whatsoever?
A. No, sir.
Q. Sent the same way.
A. Yes.

RE-EXAMINATION.

BY MR. MILLER:

Q. In what size packages is that caffeine received from the Alkaloid works and sent out?
A. It is received in five, ten and twenty pound tins.
Q. Now about Merchandise No. 5, what size packages do you receive it in and ship it in?
A. So-called forty-seven gallon barrels.

RE-CROSS EXAMINATION.

By Mr. Hirsch:

Q. What are those barrels made out of, Mr. Dubois?
A. They are so-called second-hand whiskey barrels, oak barrels.

Mr. Miller: I will now read the deposition of Edwin B. Corry.

EDWIN B. CORRY,

the next witness on behalf of the Government, of lawful

age, first duly sworn deposed as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. How old are you Mr. Corry?

A. Thirty-seven.

Q. And where do you reside?

A. Do you want my address?

Q. Yes, in what City?

A. In Philadelphia, North 29th street.

Q. How long have you resided in Philadelphia or approximately, how long?

A. Thirty-seven years.

Q. Now, state whether you ever became accustomed to drinking a substance that is known, generally known, sold and dispensed at the drug stores as "Coca-Cola" served in carbonated water?

A I have.

Q. About when did you first begin to use it daily?

A. 1896 or 1897.

Q. At that time did you drink it regularly or only occasionally?

A. Occasionally.

Q. When did you first commence to use it daily or about when?

A. The first of 1904.

Q In what business were you engagged at that time?

A. Street car work.

Q. What position did you hold with the street car company that operates the street car system in the city of Philadelphia?

A. A conductor.

Q. How long, or approximately did you hold that position?

A. Seven years.

Q. About when did you retire or sever your connection with that company?

A. July of the present year.

Q. State whether or not your service up to that time had been continuous or practically so?

A. With the company you mean?

Q. Yes.

A. Yes sir, not counting any vacation of course.

Q. State whether or not during any portion of that time you drank coca-cola, both from bottles and also from the soft drink stands, that is soda fountains at drug stores in Philadelphia?

A. Yes sir, during all that time.

Q. Commencing with 1904, state whether or not the quantity consumed daily up to the time you ceased drinking it, if you did, increased or diminished?

A. It increased.

Q. Have you ceased the use of it, and if so, about when?

A. The middle of this past July ceased intirely.

Q. That is of July, 1910?

A. Yes.

Q. State whether or not during this period the desire for coca-cola or its effect increased and became habitual? I mean with you?

A. Yes.

Q. What effect would it have on you, when you would drink it either from bottles or from the fountain?

A. It would have what I would call a refreshing effect, somewhat stimulating or invigorating, that is about the best I can describe that.

Q. And when you would be fatigued or feel fagged or tired, and would drink one or more glasses of it, would it or not revive you?

A. It did.

Q. What quantity of it did you finally consume as the habit increased?

A. About a dozen drinks a day.

Q. State whether or not you were acquainted with other persons who were accustomed to use it, and take it from fountains and in bottles as you were?

A. Yes I was.

Q. What effect did it finally have on your sleep, your rest, or in other words, for some months prior to the time you ceased drinking it, what was your condition with respect to sleep and health, just describe it?

A. Why, I became nervous for one thing, losing sleep—not all the time—the effects seemed to me what you would call intermittent, that may not be the right word.

Q. Did it or not cause you to experience peculiar sensations when you would retire at night, and if so what were they?

A. Sometimes it did, very seldom. I don't remember more than three occasions I would retire and I understood at the time I was not asleep, just to fall asleep when the bed would move—I had that sensation—some times the head part of the bed would raise up, and sometimes be the 'hind part, I don't know whether that belongs to that or not, my impression is that it does.

Q. You don't know whether or not that was the effect of the coca-cola or not, but your impression is that it was?

A. Yes.

Q. Now, when it would momentarily appear to you that the bed would move or change positions, would you or not convince yourself that you were mistaken and if so, how did you do so?

A. As soon as the effect was over I sat up on the edge of the bed; as I described it once to a party, I wanted to locate myself.

Q. After you ceased using coca-cola state whether or not your general health and your nervous condition and your disposition to sleeplessness improved?

A. It improved.

Q. Were you accustomed to usingg drugs or stimulants of any kind other than coca-cola?

A. No, except tobacco.

Q. And do you use that yet?

A. Yes, at times.

Q. Since you have broken off the habit of coca-cola state whether or not you have continually improved?

A. I have.

Q. As a result of your use of coca-cola, or as a result of your impaired health, this last July, I believe, state whether or not you were taken to any hospital, and if so, what hospital in the city of Philadelphia?

A. Yes, to the Philadelphia General Hospital.

Q. Are you acquainted with Dr. Theodore Weisenburg, who is present at this time?

A. Yes, I am.

Q. State whether or not you were examined by Dr. Weisenburg both at the hospital and at his office?

A. I was at both places.

Q. Which examination took place first, the examination at the hospital or at his office?

A. The hospital first.

Q. State whether or not he inquired as to your past condition, and your daily habits and life?

A. He did.

Q. Did you or not relate them to him fully?

A. I believe so.

Q. You endeavored to do so?

A. Yes, I did.

CROSS-EXAMINATION.

BY MR. HIRSCH:

Q. Mr. Corry, you say you have lived in Philadelphia thirty-seven years?

A. Yes.

Q. I wish you would give me each and every place you have lived in Philadelphia.

A. Each and every place?

Q. Yes, as far as you can remember.

A. I have not lived in many houses. Do you want the address of them?

Q. Yes.

A. I can't give you all of them.

Q. Well, as far as you can give me the address of each and every place you have lived, and the time you lived at those several places, I don't ask you to be entirely accurate.

A. I was born at 910 Ontario street, that would be Park avenue now—the name has been changed; and there I think I was about a year, and the next place was only there about a year, 1300 and something Heath street, that is changed now, I don't know what it is; then to 1500 and something South Jupiner street, I don't know the number but the last house; we were nine months there; then to 1522 Jupiner, I think 18 years there; then 1645 29th street, I went there in 1895, about 16 years now, and that is all.

Q. That accounts for your entire residence in Philadelphia, does it not?

A. Yes, all the houses I have lived in.

Q. Now, just describe to me the best you can the condition of those places that you lived.

A. So far as I know they were all healthy, well repaired houses and all.

Q. Well lighted?

A. Yes.

Q. And well ventilated?

A. Yes, sir.

Q. And kept up well?

A. Yes, sir.

Q. What sickness have you had Mr. Corry?

A. When I was about four years old I think they said I had typhoid pneumonia, but I am not sure whether it was that or not.

Q. Have you had any other sickness?

A. I had measles and typhoid fever at one time.

Q. When was that?

A. I was about 17 years old.

Q. And where were you living?

A. 1522 Jupiner street.

Q. Anything else?

A. No sir.

Q. Can you tell me the name of the physician who waited on you at that time?

A. I ain't sure which of the two it was, one is dead.
Q. Give us the name of the physicians.
A. Dr. Eshelman—he is dead; the other one was Dr. Thompson.
Q. Where does he live?
A. I don't know; he went to the country for his health; he gave up business.
Q. Do you know where he went to?
A. I could find out but I don't know now.
Mr. Hirsch: Could we agree, Mr. Miller, to let him look up the address and send it to Mr. Hacker to be filed as an exhibit to his deposition?
Mr. Miller: Yes, he might do that.

BY MR. HIRSCH:

Q. Will you find out and send it to Mr. Hacker, the reporter taking your deposition?
A. Yes, my mother would know.
Q. Is your mother living?
A. Yes.
Q. Will you give Mr. Hacker the information asked for so he can put it in your deposition?
A. Yes sir; I will send it to him; I can't give it to him now.

(The statement called for above is herewith filed marked exhibit No. 1 to the deposition of this witness, and is in the words and figures following, to-wit:)

"Philadelphia, Pa., 10-21-10.

Mr. E. Hacker,
Dear Sir:
These are the addresses which I was to send to you:
Dr P. Thompson, Burlington, N. J.
Dr. F. N. Yeager, Hamilton, (Jefferson County) Penn.

Yours Resp't.
Edwin B. Corry."

"1645 North 29th St., Philadelphia, Pa."

BY MR. HIRSCH:

Q. What other illnesses have you had Mr. Corry?
A. I don't believe any more.
Q. Have you been treated by no one else until you came under the care of Dr. Weisenburg?
A. Only one that I just called to mind now, Dr. Yeager.
Q. For what did he treat you Mr. Corry?
A. For nervousness, I believe, I told him I was nervous.
Q. What is Dr. Yeager's address?
A. I don't know that; he has moved lately.

Q. Well, could you find out?
A. Yes, sir.
Q. Will you give me Dr. Yeager's initials now?
A. I can't think of them now.
Q. Is he at present living in the city of Philadelphia?
A. He has moved somewhere in Pennslyvania.
Q. Would your mother know about that?
A. Yes, I believe she would:
Q. If you can ascertain and will do so, I wish you would send it to the stenographer Mr. Hacker.
A. All right, put it in with the other one.
Q. Yes.
A. All right.
Q. What other physicians have treated you—have any other physicians treated you?
A. No.
Q. Then you have had no other diseases or sicknesses of any kind or character?
A. These were family physicians, I never went outside of them.
Q. Are your parents living, Mr. Corry?
A. Yes, sir.
Q. Both of them?
A. Yes.
Q. Were they born in this country?
A. Yes sir.
Q. You stated you had been drinking coca-cola for nine years up to July of this year?
A. Seven years; I have once or twice during the time previous to seven years, I can't tell you now.
Q. You say that your mother and father are alive and were born in this country?
A. Yes.
Q. Do they live in Philadelphia?
A. Yes sir.
Q. Were they related?
A. You mean before marriage?
Q. Yes.
A. Not as I know of.
Q. You don't know whether they were or not?
Q. No sir, could not have been; they came from two different lines.
Q. Do you know whether there has ever been any insanity in your family?
A. Not that I know of.
Q. Either one of your parents nervous?
A. My father is a little nervous now I think.
Q. How long has he been nervous?

A. I couldn"t say the exact time; I don't believe over a year.

Q. Do you know whether any of your parents have had any diseases?

A. No, my father has only been sick about twice; that is, that I know of; he has worked right through.

Q. Your father does not drink?

A. No.

Q. Or dissipate in any way?

A. No.

Q. Not in any way?

A. No, sir.

Q. Do you have much mental work or have you ever had much mental work?

A. When I worked on the cars that was pretty much mental work, observing everything that happened along, you know.

Q. Now, before you went into the employ of the street car company, did you have any mental work?

A. I worked at printing then, that makes a good deal of mental work, yes.

Q. And what were the conditions surrounding you in regard to light and air in the printing shop? I mean the one in which you worked?

A. Close.

Q. Where did you work in the printing shop?

A. Talbert, below Broad, old Dunlap building; at that time worked right over a laundry.

Q. Explain the conditions surrounding you there

A. Worked in one large room.

Q. Many people work in the same room with you?

A. No, not as many as there might have been, I forget how many there were altogether; I think we had six on one end and about a dozen on the front end.

Q. Well, go ahead.

A. The place was very warm and close on account of the laundry underneath.

Q. How long did you work there?

A. I don't believe I was there more than about two years at that building. I worked for the same firm in another building,

Q. With the same conditions surrounding you?

A. No, sir.

Q. Somewhat better?

A. Much better; except the ventilation; I don't think the ventilation was so good there for a long room and only three windows on each end of it.

Q. Where did you work before that time?

A. Before that time I worked in another printing office for only a couple of months.

Q. And where was that?

A. 420 Lively Street.

Q. What were your conditions there?

A. Very good; well ventilated room and windows all way around three sides.

Q. Plenty of light?

A. Yes, four sides, plenty of light.

Q. And working in the printing shops you have mentioned you were closely confined to your work.

A. In the last place.

Q. Did you get much exercise?

A. Not what you call exercise.

Q. Except to stand at the presses?

A. No, I was a type-setter—you have got to move in all kinds of shapes to do that.

Q. Where did you work before going into the printing establishment?

A. I worked at No. 926 Chesnut Street.

Q. What kind of work was that?

A. Errand boy; the first place I started.

Q. The first place you worked?

A. Yes.

Q. In doing your work did you get much exercise, that is as a printer and street car conductor?

A. Yes, I think I did; good deal of movement to be done.

Q. As a street car conductor, there is considerable worry attached to it?

A. Not exactly.

Q. In collecting fares and seeing nobody is hurt?

A. Strain, you might say.

Q. Were you ever under any excitement?

A. Accident?

Q. No, were you with the street car company when they had the strike in Philadelphia recently?

A. Yes.

Q. Did you work during that strike?

A. No.

Q. You quit during that strike?

A. Yes sir.

Q. Now, when you quit work with the street car company didn't the question of your means of support worry and annoy you?

A. You mean during the strike?

Q. Yes.

A. There naturally was some worry as regards the future and how things were going, you know.

Q. There was continuous excitement during that strike, was there not?

A. I don't feel exactly like calling it excitement.

Q. Call it what you mean.

A. I call it just natural exercise or strain.

Q. Did you ever drink?

A. No, sir.

Q. Never touch it?

A. I have tasted it, but never a drinker of it.

Q. Do you smoke?

A. Yes.

Q. When did you commence smoking?

A. Well, say 1890.

Q. Have you smoked ever since?

A. No, I have broke off a number of times.

Q. What do you smoke?

A. Smoke a pipe now, and for several months before that I smoked mostly cigars.

Q. Did you ever smoke cigarettes?

A. No.

Q. Are you a married man?

A. Not yet.

Q. Ever dissipate to any extent?

A. No, sir.

Q. Did you ever dissipate at all?

A. No, I don't think you would call it dissipation—I used to belong to the National Guards, but that was only what you might call excitement and strain.

Q. I mean by dissipation late hours at night.

A. Oh, yes.

Q. Run around with women?

A. No, sir,

Q. Not at all?

A. I have been out with them.

Q. You have run around a good deal, have you?

A. Yes, I have run around, but I can't call it dissipation exactly.

Q. You have been out with the boys at night, as it is called?

A. No, sir, not that is going around boozing and all that—I leave that part out—I have been around.

Q. You don't want to be accused of boozing?

A. That is what I meant when I said going with the National Guards, going around with some of them, but didn't booze with them.

Q. Did you ever have any trouble with your eyes?

A. No, sir.
Q. Your eyes are in good condition as far as you know?
A. Yes sir.
Q. Never wear glasses at all?
A. No.
Q. When was the last time you were examined by a physician, Mr. Corry?
A. When Mr. Weisenberg examined me last; I don't know what date that was.
Q. Has it been recently?
A. Yes, it may have been the 20th of September last.

BY MR. MILLER:

By Mr. Miller:
Q. Mr. Corry, if I correctly understood you, you first tasted coca-cola about 1897, but you didn't become a drinker of it until 1904?
A. Yes, sir, that is right.
Q. Now, your duties as a street railway conductor were the usual duties of a street railway conductor, were they not?
A. Yes sir.
Q. And when was that strike you were asked about on Cross-examination, about when?
A. That started about, I think, the 19th of February, I believe that was the date.
Q. Of this year?
A. Yes.
Q. And ended when?
A. Lasted nine weeks.
Q. You say it lasted nine weeks?
A. Yes, sir.
Q. How old is your father, Mr. Corry, about how old is he?
A. Sixty-two, I think.

Whereupon a recess was taken until two o'clock p. m. of the same day.

AFTER RECESS.

The Court met at 12:20 o'clock p. m., pursuant to the taking of recess.
Thereupon,

DR. WILLIAM F. BOOS,

of lawful age, was produced as a witness by and on behalf of the Government and having been first duly sworn, testified as follows:

DIRECT EXAMINATION.

By Mr. Miller:

Q. What is your profession, Doctor Boos?

A. I am chemist and pharmacologist at the Massachusetts General Hospital in Boston, and a physician with a consulting practice in internal medicine.

Q. What do you mean by "Internal Medicine," Doctor?

A. I mean that part of medicine which refers particularly to diseases inside of the body. It does not include such things as obstetrics, eye, ear, nose, throat, gynecology or diseases of women, or things of that sort.

Q. Where were you educated and graduated first in medicine?

A. I took a degree of A. B. at Harvard in 1894.

Q. Harvard University, at Boston?

A. Yes; and then I studied at the University of Heidelberg.

Q. In Germany?

A. In Germany.

Q. How many years?

A. Two years. I took the degree of Ph. D. in chemistry there, and I returned to America and was for one year assistant in the Department of Chemistry at Havard University. The next year I entered the Harvard Medical School, and in 1901 I took the degree of M. D. from the Harvard Medical School.

Q. That is Doctor of Medicine?

A. Doctor of Medicine. Then I entered the Massacheusetts General Hospital and served eighteen months as the House officer, or House Physisian, on one of the medical services.

Q. Did you take any further course in medicine?

A. Then right immediately after graduation I went to Europe to the University of Strassberg. For two years I worked in research in pharmacology, or the action of drugs, and the next two years I was assistant to the head of the institution, Professor Schmiedeberge, so that I was four years at the University of Strassberg.

Q. Prof. Schiedeberge is located where?

A. He is professor of Pharmacology at the University of Strassberg, Germany.

Q. State whether or not you have ever taught pharmacology?

A. I taught pharmacology at Strassberg. I taught, I had the instructing of the young men there, the young medical men who came for research in pharmacology. I instructed them in the methods of experimentation upon animals.

Q. What is pharmacology, Doctor? Explain to the jury in a brief way what it is.

A. Pharmacology is that science which has to do with the physiological or pharmacological action of drugs upon the animal system, the action of drugs. It is a part of physiological chemistry.

Q. And in that sense do you include man as an animal?

A. Yes, sir.

Q. And what do you mean by the term "physiological chemistry? Explain that.

A. Physiological chemistry is that branch of organic chemistry—that is to say, that branch of chemistry which has to do with substances containing carbon, which is primarly referred to the life processes which go on in the animal body. In other words, it is the chemistry of life.

Q. The chemistry of life?

A. Yes, sir.

Q. Now, after your return from your last visit and study in Germany, state whether or not you have had any connection with the Massachusetts State Board of Health or the hospitals there in Massachusetts?

A. I was called back to Massachusetts to undertake a research for the state Massachusetts Board of Health on the question of the cold storage of poultry, and I returned in the year 1906 to do that work.

Q. As a chemist, what has been your experience?

A. As a chemist?

Q. Yes, sir.

A. I worked in chemistry while an undergraduate of Harvard, taking all the courses they offered in instruction and one course in research before I went to Europe. Then, after my return from Europe, and after I entered the medical school, I was for a number of years, for two years, the consulting chemist of the American Printing Company in Fall River, so that I have some practical experience in commercial work. I have taught chemistry. I taught chemistry for five years in evening institutions, and of course experience in pharmacology is experience in chemistry. Besides that, at this present time I do all the medico legal work for the medical examiner in the Northern District of Suffolk County.

Q. Is Boston in Suffolk County?

A. Yes; and of course I have charge of all the chemical work which is done upon patients, and upon the products of the various food substances which are obtainable in the hospital for research in those lines of work,—physiological chemistry.

Q. In addition to that, state whether or not you have a

practice among—that is, whether or not you have patients of your own or whether or not you have a consulting practice aside from the duties that you have described which you now perform.

A. I have. I have a consulting practice in internal medicine in the city of Boston; that is to say, I do not act as a general practitioner, but see cases in consultation with other men and see cases which heve been referred to me by other men, and also those cases, of course, which come to me particularly in an office and consulting practice. One of my functions at the Massachsetts General Hospital is the introduction of new methods of drug treatment. That all pases through my hands now.

Q. When you say patients that are sent to you by other men, and other men that come to consult you, what kind of men do you mean?

A. Physicians.

Q. Men of what profession?

A. Physicians.

Q. Have you ever had occasion to experiment with Coca-Cola syrup as to its effect on animal life?

A. I have.

Q. From whom did you receive that Coca-Cola syrup?

A. I received it from the Department—from the Division of Drugs, Bureau of Chemistry; and I received it from Doctor Kebler. That is to say, the shipment was accompained by a letter from Doctor Kebler.

Q. Was that received by you from a department of the Bureau of Chemistry at Washington, D. C.?

A. Yes, sir.

Q. In what kind of a receptacle was that mixture contained?

A. It was in a five-pound—five-pint sealed bottle.

Q. And state the result of your experimentation in a brief but general way, to the jury, and the use of this Coca-Cola syrup that you thus received.

A. I employed as the experimental animal, frogs, the common frog which occurs in this part of the country as also in Massachusetts, namely the Rana Pipiens.

Mr. Hirsch: What is the name of that frog, please?

The Witness: The Rana Pipiens. Two words, R-a-n-a P-i-p-i-e-n-s, another word.

BY MR. MILLER:

Q. That is the technical scientific name of that frog that you experimented with?

A. Yes.

Q. You say that that frog is found in this section and

also in Massachusetts?

A. I believe it is.

Q. Well, you may proceed.

A. It is the common frog found throughout the United States. I gave this frog varying quantities of Coca-Cola syrup diluted with its own volume of water, and I found in this way the quantity, the minimum or smallest quantity, which was necessary to kill a frog. This quantity I found to be thirteen to fourteen hundredths of a milligram for every grain of the frog's weight. In the English system that would be thirteen six-thousandths of a grain to fourteen six-thousandths of a grain for every 15 grains of the frog's weight. This work was done, of course, with the metric system, because it is easier to handle for that sort of thing.

Q. State whether or not, in ascertaining the toxic effect of drugs, animal experimentation is resorted to.

A. It is the only means at our disposal, and all the advance in modern medication has been through that one channel.

Q. Why do you not resort to human experimentation as a rule?

A. Because as yet we are not allowed to use live persons for that purpose.

Q. What are the effects of caffeine, Doctor, on the frog or on humanity, either or both?

A. Would you like to have the effects on the frog?

Q. Give it on both.

A. In the frog, caffeine will produce a pronounced action upon the heart. The heart is slowed by caffeine, the tendency to systole or contraction of the heart becoming more pronounced, and in the course of time the heart is stopped if a sufficient dose has been given. The heart stops ins systole or contraction.

The frog also shows a decided tendency to increased irritabilty. That is to say, if a frog has been poisoned with caffeine, and, in any way, a mechanical insult is brought to bear upon that frog, he will have a tetanic convulsion the same sort of convulsion which you get in lockjaw. The best way to produce that is by simply striking the sub-stratum, we will say the plate upon which the frog is placed, with a pair of forceps or a pencil, and this shock will immediately produce in the frog a tetanic convulsion.

Q. You mean by that a spasm, what we ordinarily term a spasm?

A. A spasm, if you will, yes.

Q. If you were to take that frog before he has caffeine administered to him and strike the plate or other article

on which it is resting, before he has had the caffeine and then strike it after he has had the caffeine, if there would be any difference in the frog's action, tell what it would be.

A. The frog would pay absolutely no attention to the striking of the sub-stratum before the caffeine was given him. He would not move at all.

Q. What does that indicate or teach as respects the nervous system of the frog? What do you conclude from that as to the nervous irritability that is excited by the caffeine

A. It shows that caffeine acts directly upon the centers of the spinal cords, increasing the irritability of the cord and also stimulating the spinal cord to this increased re-action.

Q. What is the effect of the administration of caffeine to humanity?

A. In human beings there is also an effect upon the heart very similar to that in the frog. There is a slowing of the heart, a more pronounced systolic action. The caffeine also acts in the human being on the spinal cord, producing an increased irritability, an increased reflex irritability, so that little insults, as we may call them, occurring ordinarily, become magnified. The person becomes what we might call nervous, nervously irritated, and little things which ordinarily in his normal condition would not be apt to produce a re-action, render him unhappy under this condition. It also has an effect upon the centers of the brain, stimulating those centers to increased activity.

Q. Now, when those centers are stimulated to increased activity, what is the effect on the health of the person if that is continued steadily?

A. The effect on his health is a deleterious one, because this stimulation is carried out at the expense of the organism. You administer a drug which produces stimulation, but you administer nothing which supplies energy to this stimulation, so that the result is that the drug draws upon the reserve force, the reserve energy of the organism, the energy of the cells, and therefore to that extent impairs the organism. I would like to say that in the case of the frog, caffeine also has a very characteristic and pronounced action upon the muscles of the frog. This is produced not only when the muscle is exposed to it but whenever the substance is given the frog, sooner or later a condition is ine produces a condition which, under the microscope, canthe condition we speak of in animals after they are dead, the stffness afer death. It is called rigor mortis, and caffeine produces a condition which, under the microscope, can-

not be distinguished from rigor mortis. It does that, of course, also in animals of a higher order. In the human being it has the tendency to produce that condition.

Q. What is the effect of caffeine on the human system, or on the frog, as compared with that of strychnine?

A. It is not unlike that. There is a state, a time in this poisoning by caffeine when it would be impossible to distinguish between the poisoning by strychnine and the poisoning by caffeine. The picture would be the same. The action in some other respects is different but the action in producing an increased reflex irritability with these peculiar spasms is the same by both drugs.

Q. State whether or not you examined the urine to ascertain whether or not there was any abnormal constituent found in that as the result of the use of caffeine.

A. I have not personally so examined the urine, but the urine in cases of caffeine poisoning will show the presence of sugar.

Mr. Sizer: I object.

The Court: Do you state that of your own knowledge?

The Witness: Yes, sir; from my own knowledge, as derived from medical literature, the only way we can get it.

The Court: The exception is overruled.

BY MR. MILLER:

Q. What is the effect of that, Doctor, as respects the health of the consumer of caffeine?

A. The production of sugar in the urine or the viscera is decidedly deleterious to the organs.

Q. When a person takes caffeine, what is the effect of that contact between the caffeine and the body, and how is it thrown off, if at all, after it enters the body, or discharged, I should say, excreted?

A. Do you mean——

Q. The caffeine substance.

A. How does the body overcome the action of the caffeine?

Q. Yes, and is it assimulated, and if it is, how is it finally excreted or removed from the body?

A. The system attempts to overcome this deleterious or poisonous action on the part of the caffeine by trying to break up its chemical micro-organisms; that is to say, its chemical integrity, and the body succeeds in doing that to a certain extent, although some caffeine leaves the body in the urine, unchanged. A greater part of it is broken down into simpler chemical substances which belong to the same general chemical group as caffeine.

Q. State whether or not the effort of nature to break

up and throw off that caffeine is an effort that follows the introduction of any poisonous substance or various poisonous substances into the body.

A. Always. It requires an extra effort. It calls upon the reserve forces of the organism to bring about this reaction.

Q. State whether or not that increases the function of the organism; that is, the organs that assist to throw that off.

A. I would like to hear the question.

Q. I may not have made myself clear. I want to know whether of not that taxes or increases the tax that is made on the functions that assist to eliminate that poison from the system.

A. It does.

Q. And what is the effect of that on health?

A. It is decidedly deleterious. It weakens the resistance of the organs toward disease.

Q. You used the term "nerve force." What is meant by that, Doctor?

A. Our system is equipped to meet certain emergencies which may occur. That is to say, we are able to undergo a special exertion when it is called for, but of course only to a limited extent. That is to say, when a man, in order to meet the requirements of life, has to run for a distance he can do so, but only for a limited distance. So, also, he can do a certain amount of mental work, and he can do a great deal of mental work, but as he continues to do it he is constantly calling upon the reserve force of the organism, and the time will come when he will not be able any longer to do that mental or physical work because he will have exhausted the reserve energy which the system supplies him with.

Q. In what character of persons are the effects of caffeine most noticeable or observable?

A. In those people who by nature are more irritable than others, the so-called nervous people, or people with a tendency to nervousness, people with less stable temperaments. They are more particularly affected, of course, and more visibly affected by the action of caffeine, because their nervousness or tendency to nervous irritability is increased.

Q. What are the effects on the young, as compared with the robust persons of mature years?

A. Children should never be given drugs of any kind. It is a serious mistake ever to give children drugs, because they undoubtedly impair the functions of organs that are growing. These organs are just in the formative period,

and in many cases and in all cases the giving of drugs to children will undoubtedly interfere with the proper development of a child's functions which are being treated that way.

Q. Would or not the effects of administration of caffeine likely be more marked in a person of tender years or growing or young persons than one in mature years of life?

A. Yes, sir, it would.

Q. What is meant by the term matabollism?

A. Metabollism is a term which is employed to indicate the chemical changes which occur in the human body, particularly applied to the absorption, the combustion or burning up of the food in the organism and its excretion, or putting out of the body.

Q. Is there or not what is known as normal metabollism?

A. There is.

Q. State whether or not the administration of caffeine, or the use of it in doses of from nine-tenths of a grain to 1 and ¼ grains, administered in connection with the Coca Cola syrup, the components of which you heard Dr. Fuller give, would likely affect the normal or natural process of metabollism?

A. It would be likely to.

Q. Now, what would be the effect of that on the human health?

A. On the human?

Q. Yes? If you interfere with the normal metabollism?

A. It would be deleterious.

Q. And by that you mean detrimental?

A. Yes, harmful.

Q. Is caffeine administered as a drug, and if so for what purposes and what are its functions as a drug?

A. Caffeine is given in cases of heart disease as a stimulant for the heart and it is also given to stimulate the nervous system when such stimulation is necessary, and also as a stimulant for physical fatigue.

Q. Now, what other drugs, if any, are administered to stimulate the heart and nervous system just a few of them—instance just a few of them?

The Court: I do not see the materiality of that.

Mr. Miller: Only by way of showing the tocity of this drug is all.

The Court: You have shown it was used as a drug.

BY MR. MILLER:

Q. I will ask you to state what the effect of the adminis-

tration of caffeine is on the brain, if you know?

A. It causes a stimulation of the centers in the brain so that for the time being the person who is taking the drug is able to do more mental work than he was before he took the drug. It simply makes the activity of those cells more pronounced for the time being, the cells in the brain.

Q. Now, does any result follow that stimulation, and if so what?

A. That stimulation, as all stimulation of that kind, is followed by a compensating depression or fatigue; that stimulation calls upon the reserve force and when that has been caused then the organism is required to rest in order to recover from the loss of reserve force, and that recovering process is shown in fatigue.

Q. Now, what is the effect of that on human health?

A. I think it is deleterious.

Q. Now, you have stated that it was taken to stimulate the brain and increase or to increase mental activity. Is the work done under that stimulation at the expense of any other portion of the organism, and if so what?

A. Well, I don't think that I quite understand the question.

Q. I will ask Mr. Hacker to read you the question. (The question was re-read to the witness.)

A. Why yes, the work is done at the expense of energy derived from the organism itself, at the expense of the reserve energy.

Q. Is there in the administration of this caffeine any compesating energy or anything that goes to supply that which is expended?

A. Absolutely none.

Q. What effect, if any, does the administration of caffeine have on the tissues that form a part of the body or of which the body is composed?

A. I spoke of the effect that caffeine has of producing a condition which cannot be distinguished miscropically and also grossly from rigor mortis or the stiffening of the muscles after death.

Q. Now, what is the effect of that stiffening doctor? State whether or not it tends to produce arterio-sclerosis?

A. Yes, sir.

Q. Tell us of what that consists, or what is it?

A. It is the degenerating process occuring in the walls of the arterial system; it is a process which consists in degeneration, the replacement of muscle tissue by fat and the loss of elasticity which is essential to well being in these arteries; also a disposition of lime salts which render in time these arteries as rigid as the ordinary water pipes,

so you can crumble them right between your fingers at the autopsy.

Q. What is the effect of the administration of caffeine on the digestion taken in this Coca Cola syrup as the ingredients have been given to you by Dr. Fuller and the way it is usually served at fountains, and assuming that it is served at the times that Dr. Stewart and Dr. Kebler have stated?

Mr. Sizer: I object to his referring to the testimony of other witnesses in the case.

The Court: Yes.

BY MR. MILLER:

Q. Then, I will ask you, assuming that this mixture as given by Dr. Fuller, and as analyzed by him be served indiscriminately to young people and children, old and young, at the fountains in carbonated water ranging from six to eight ounces to the glass, during all the hours of the day and up to as late as ten or twelve o'clock at night, what would probably be the effect on the digestion?

A. A substance of this sort, such as Coca Cola, would have a great tendency to disturb the digestive functions.

Q. State why please sir?

A. The local action of its ingredients such as caffeine and the phosphoric acid would irritate the walls of the stomach and would in time tend to product hyperacidity and an increased secretion of acid in the stomach. Then the action of the caffeine on the nerve which controls the stomach to a certain extent the pneumo-gastric nerve. This constant action upon that nerve would have a tendency in time to disturb digestion or the digestive action of the organ.

Q. If that be disturbed what is the effect on the human system?

A. It would be harmful.

Q. You speak of the sub-stratum as supplied to the frog I understood you to say was the plate or whatever it might be setting on, that is what you meant by that term?

A. Yes sir, anything upon which the frog is sitting.

Q. Is caffeine a food in any sense?

A. No sir.

Mr. Miller: You may cross examine.

CROSS EXAMINATION,

BY MR. SIZER:

Q. I believe that you refer Dr. to Dr. Schmiedeberg, of Strassburg, as one of the persons under whom you studied?

A. I did.

Q. Is that gentleman a very eminent man in the scientific world?

Mr. Miller: I object to that, having one man pass on another.

Mr. Sizer: I think that is competent.

The Court: Is this doctor an expert who has testified by deposition?

Mr. Sizer: Yes, his deposition has been taken. He studied under him and knows his qualifications.

The Court: The objection is over-ruled. Let him state —

BY MR. SIZER:

Q. In the scientific world —

A. In the scientific world he is.

Q. In the scientific world?

A. In what particular branches of science?

The Court: Limit it to whether he is a man capable of giving an expert opinion —

Mr. Sizer: I am asking him in all branches.

The Court: Well, ask him whether this doctor is qualified as an expert to express an opinion on any given subject.

Mr. Sizer: Well I don't believe I care about asking it of him that way.

The Court: I do not think we will go into measuring the various degrees of qualifications.

BY MR. SIZER:

Q. Now, you say you received the sample of Coca Cola syrup from Dr. Kebler, which you analyzed?

A. Yes, sir.

Q. And about when was it that you got it?

A. I received it in October.

Q. You did analyze it?

A. It was analyzed by me.

A. How many different analyses did you make of it?

A. I made two.

Q. Now you say you fed some frogs with syrup?

A. I did not feed it to them in the ordinary sense —

Q. You did not feed it to them?

A. No, sir.

Q. How did you administer it to them?

A. I injected it into the anterior lymph sac.

Q. Now, just tell the jury what that means please?

A. The frog has a very loose skin and quite a cavity in front between his skin and abdominal organs and by put-

ting the point of a needle from the hypodermic syringe under his tongue you inject the material into his anterior lymph sac.

Q. As Coca Cola syrup?

A. Yes, sir.

Q. Why didn't you feed it to him, doctor?

A. Because it is a very difficult thing to feed frogs.

Q. The frogs don't like it?

A. They do not like to be fed anything and then it is a very difficult thing to do.

Q. And especially they would not like Coca Cola syrup would they take it into their stomachs?

A. Well, I can't speak for the frog.

Q. Now, doctor, the effect of any substance of that kind administered directly into the circulation or into the lymph sac —

A. Not directly into the circulation —

Q. (Continuing) Is it a fact the effect of that substance administered as you did administer it would be more potent than if taken in the stomach?

A. It would be more rapid, yes.

Q. How many of these frogs did you experiment on in that way?

A. About 25.

Q. Did you give them all the same quantity of Coca Cola?

A. Pardon me. I experimented perhaps on sixty or eighty frogs in all but the frogs that I spoke of that were killed with these doses were 25 in number. I experimented on about eighty or more frogs.

Q. And you administered the Coca Cola syrup to the frogs in the same way in each instance?

A. No, I administered it in a great many different ways.

Q. What other ways?

A. I prepared what we call a "window frog," that is by laying bare the frog's heart and then applied the drug or rather this mixture into the anterior and posterior lymph sac, that is the same way injected into the back under the skin to see how long it would take to stop the heart beating; I also gave it in various ways to study the occurence of the reflex irritability before I started in to determine the quantity of the material that would kill the frog.

Q. What other ways have you administered the Coca Cola syrup in addition to those two you have stated? That is, through the anterior and the posterior lymph sacs?

A. That is the only way I administered it.

Q. I understood you to say you administered the syrup

in various ways in order to determine certain effects?

A. That was a mistake — I meant I used other frogs to determine these other effects.

Q. In all the cases the syrup was administered either through the anterior or the posterior lymph sac?

A. Yes, sir.

Q. How much did you say you fed the frog before it would die in that way?

A. A dose of 13/100 and 14/100 of a milligram per gram of weight—of course frogs vary in size, and it will take much less to kill a little frog than a large frog, so you always have to give it according to size and weight of the frog.

Q. Doctor, state proportionately what quantity of Coca Cola syrup you would have to give a man in order to give the man the same amount that the frog would take?

A. It is impossible to do so.

A. Could you get somewhere near it?

A. No, I don't think I could, not at the present moment.

Q. Well, the fact is a man's stomach would not hold all that he would have to take in order to take the same amount or proportion to size?

A. No, sir, I think you are wrong; I think it would take it.

Q. It would take a considerable amount?

A. I think the stomach could very easily hold that and more.

Q. Have you no idea about what a man weighing 150 pounds would be, proportioned to his weight, as to the weight of a frog proportioned to the amount given?

A. I have no idea.

Q. You say that the effect of caffeine on the heart is to slow its action?

A. The effect of caffeine is to accelerate its action but caffeine also has its action on the vagus nerve which overcomes the accelerating action of the caffeine on the heart.

Q. Then in as much as it retards the effect on one nerve overcoming the accelerating effect on the other, this is no accelerating or retarding either way is that it?

A. There is usually acceleration.

Q. An acceleration?

A. Yes, sir.

Q. But the amount of acceleration depends on the amount given, is that true?

A. Yes, and upon the individual and the time it is given.

Q. There is a great difference in animals with respect

to the effect of caffeine?

A. Yes, sir.

Q. Did you ever conduct any experiments in administering caffeine to human beings or Coca Cola syrup to human beings?

A. I don't think such experiments are justifiable.

Q. I am not asking you whether they are justifiable but I am asking you whether you ever conducted any?

A. No, sir.

Q. Your use of caffeine has been by administering it to patients?

A. Yes, sir.

Q. You have never had any experience—but first I will ask you, that was to people who were sick and who require medical treatment?

A. Yes, sir.

Q. You have never had any experience at all in administering Coca Cola syrup?

A. I have taken it once myself but never since then.

Q. I am speaking of administering it to patients?

A. No, sir; I have not.

Q. You have had no experience in that?

A. No, sir.

Q. And you only took one dose yourself.

A. Yes, sir.

Q. Do you administer it often as a drug?

A. I do not.

Q. And when it is administered it is administered as a stimulant, is it?

A. A heart stimulant—that is what it has been given for in medicine.

Q. Well, it stimulates not only the heart but the brain and muscles?

A. Yes, sir.

Q. And it enables the brain to act better?

A. Yes, sir.

Q. It enables the muscles to act better?

A. For a short time.

Q. In other words, the direct effect of it is to enhance the normal action of the organ?

A. You can't enhance the normal action of the organ or of any organ.

Q. Well, you say it makes them act better?

A. You can't improve that.

Q. If you make them act better by taking a little caffeine does that improve its action?

A. Well, provided you do not have to pay for it afterwards.

Q. The ultimate effect I say is to—I mean the immediate effect is to improve the action of the function of the organ?

A. Perhaps so.

Q. That is true?

A. Yes, sir.

Q. And the question of whether any subsequent depression follows depends on whether you take too much of that stimulation, is that true?

A. No, I think that a drug like caffeine will have a tendency to produce its stimulation and its fatigue which is consequent upon that stimulation in the smallest dose.

Q. You say that is true?

A. You may not know the effect but the effect will be there just the same.

Q. In other words, every time a man takes a cup of coffee it is your opinion there is depression following from that?

A. Yes, sir.

Q. And the resulting deleterious effect?

A. Yes, sir; it may be slight but it is there.

Q. Now, how do you know that? Is that theory based on any experience?

A. It is based on the fact that caffeine always acts as caffeine no matter how you take it, and any drugs that contains caffeine, if you take it, you will get the action of caffeine.

Q. Do you know that caffeine at all times and in all doses does result in depression?

A. Yes, sir.

Q. How do you know that?

A. By experience, and —

Q. Personal experience —

Mr. Miller: Let him answer.

The Witness: And by study of the literature.

BY MR. SIZER:

Q. Is there any medical work, doctor, that says that that the use of caffeine always results in depression?

A. I think so.

Q. Where, what work is that?

A. I think practically all of them say it.

Q. Just give me one?

A. Why Dr. Schmiedeberg that you referred to, or having been quoting, says it.

Q. Let us have that work of Dr. Schmiedeberg. Have you got it?

A. No sir.

Q. Well, give us some American work?

A. I am not familiar with the American works.

Q. You don't know of any work except that of Schmiedeberg and that is not accessible which says the use of caffeine is always followed by depression?

A. I think Kobert says it.

Mr. Miller: We have that work and don't wish to have it stated that it is not here —

Mr. Sizer: I am asking the witness now.

BY MR. SIZER:

Q. What was your other work?

A. Kobert, you have it.

Q. Does he say that the use of caffeine in any quantity is always followed by depression?

A. I think so. May I explain?

Q. No, I asked you that question —

The Court: The witness may make any explanation after answering.

The Witness: May I explain? It is not necessary to state that depression follows stimulation because that follows stimulation as the sunset follows the dawn in every single case.

BY MR. SIZER:

Q. Now, I didn't ask you to argue that question at all. I simply asked you whether any medical authority that you were aware of —

A. Yes sir.

Q. That says that the use of caffeine in any quantity is always followed by depression?

A. Yes, I think every medical authority that writes on the subject will make that statement.

Q. Is it true that the use of caffeine in moderate quantities is not followed by depression?

A. I don't know that—I don't see how it is possible.

Q. Are you familiar with a work by Torwald Sollmann, a text book of Pharmacology and some Allied Science.

A. I have heard of it.

Q. Is that considered as a good authority?

A. I don't know.

Q. Well, it is a book that is very commonly used in this country is it?

A. I would have to take the opinion of other men; I have not used it.

Q. Well, according to opinions of other men it is a good authority?

A. I don't know.

Q. I will ask you if Dr. Sollmann says that caffeine in moderate doses does not seem to become noxious with habitual use, is that correct or not?

A. I think that is incorrect absolutely.

Q. Well, suppose he says also the effect of caffeine is never prolonged but it not followed by depression?

A. I don't think that is correct.

Mr. Miller: No foundation for the hypothetical question in the first place, and it is entirely irrelevant and I object to that.

The Court: I understand it is offered on cross examination to contradict the opinion of the witness expressed on direct examination.

Mr. Miller: It has not been shown that Dr. Sollmann says that is so, and not proven whether he is an authority or not.

The Court: I assume counsel read from the book.

Mr. Sizer: I have the book here, at page 178.

Mr. Miller: He is not present here, and I do not understand he is to be called.

Mr. Sizer: It is well settled that I have a right to read from medical authorities and ask the witness whether he agrees with such and such statements.

The Court: The objection is over-ruled.

Mr. Miller: He has not proved it is a reputable book.

The Court: I think until you prove by some one it is a reputable authority—he says he don't know about; when you prove that you may ask the witness about it.

BY MR. SIZER:

Q. Do you know of a work by Richard R. Cusshny, entitled a Text Book of Pharmacology & Therapeutics?

A. Yes, sir.

Q. Is that a good authority?

A. Yes, sir.

Q. Now, Doctor, if Mr. Cusshny says on page 245 "if the quantity of caffeine taken ingested is small the results are a distinct benefit to intellectual work and capacity for physical exercise also is augmented" is that true?

A. Yes, sir.

The Court: That does not contradict him—limit the matters to purpose of contradicing the witness.

BY MR. SIZER:

Q. Are you familiar with Potter on Materia Medica?

A. No, sir.

Q. Do you know anything of the reputation of that book?

A. I don't know anything about it.
Q. You never heard of it?
A. I have heard of it in this trial.
Q. You don't know whether it is a good authority or not?
A. I don't know.
Q. Did you testify in your examination in chief, Doctor, that caffeine has an injurious effect on the stomach?
A. I did so testify.
Q. Now then, isn't it true that a great many authorities say it is used as a stomach tonic?
A. I am not aware of that fact.
Q. Do you know Barthlomen's work on Materia Medica?
A. No, sir.
Q. You don't know whether that is a good authority or not?
A. No, sir.
Q. Do you know a work by George S. Butler entitled a text book of Materia Medica and Pharmacology and Therapeutics?
A. I have seen that book and I have also used it on one or two occasions, but am very unfamiliar with it.
Q. If you used it it was a good authority?
A. I couldn't find what I wanted in it.
Q. Do you consider it a standard medical authority?
A. No, sir, I do not.
Q. Now, Doctor, in addition to the caffeine that is in the Coca Cola syrup would not those other ingredients all be injurious to a frog?
A. Will you name them please so I may know?
Q. Sugar?
A. Yes.
Q. Phosphoric acid?
A. Sugar? To a certain extent I found it was not.
Q. Phosproric acid?
A. Yes, sir.
Q. And both of them would be injurious to a frog?
A. Yes, sir.
Q. You say yes?
A. But that would not kill the frogs in the doses in which they were administered, the Coca Cola syrup.
Q. How do you know, did you try that?
A. Yes, sir.
Q. Supopse you would inject milk —
A. (Interrupting) I didn't try it with phosphoric acid. I didn't know it was contained in the Coca Cola syrup. I tried it with the syrup.

Q. That was the pure sugar syrup?
A. Yes, sir.
Q. You didn't try it with the phosphoric acid?
A. No, sir.
Q. And you don't know whether the phosphoric acid would kill them or not?
A. I don't think it would kill them because a stronger acid than that was taken by a frog without killing the frog.
Q. At any rate you do know that it would produce a deleterious effect on the frog?
A. Yes, sir.

BY THE COURT:

Q. Now, when you say you killed the frog what do you mean by that? How many doses did you give the frog?
A. One.
Q. Kill the frog instantly with one dose?
A. No, sir, the frog died in the course of time, maybe a half to an hour.
Q. Within an hour or two?
A. Yes, it depended upon the rate of absoption.

BY MR. SIZER:

Q. Do you now take the position that all kinds of stimulants are injurious?
A. I do.
Q. And a man has no business to be stimulated at all?
A. I think so.
Q. Well now, it is a fact that practically all life is stimulation?
A. Not drug stimulation.
Q. I don't ask you about drug stimulation, I ask you about stimulation generally?
A. I think you misuse the term.
Q. Does not food stimulate your stomach?
A. Yes, but food gives you energy that is necessary.
Q. But it stimulates, does it?
A. Well, not in the way that a drug stimulates, that is a misuse of the term "stimulation."
Q. What about education, is that stimulation to the mind?
A. Why I think you use —
The Court: (Interrupting) That is a play on words.

BY MR. SIZER:

Q. I wanted to get his idea of what he thinks. Then you make a distinction?

A. Yes, as I am using it.

Q. And the extent of the stimulation depends on the amount of drug you take?

A. Yes, sir.

Q. Isn't a fact that thousands of people, and millions of people, take caffeine in the form of a beverage without any appreciable deleterious result?

A. I would not agree with that. I think the result is appreciable in a great many cases; I do not think that thousands take it without appreciable result.

Q. In the majority of cases of people who take caffeine in the form of a beverage is it true there is no appreciable deleterious result?

A. No, I can't quite agree with you.

Q. Can you say there is a deleterious result following, an appreciable deleterious results following in the majority of the cases of those who use caffeine as a beverage? I mean caffeine in a beverage?

A. I think so.

Mr. Miller: I object to that. I submit that we are trying it served as a beverage, as a soft drink—I submit we are entitled to have counsel to limit his question to one beverage or the other, beverage is general, and I simply wish to have a limitation on it.

The Court: If the witness wants to make a limit—he can in answering.

The Witness: Will you stipulate which beverage you refer to?

BY MR. SIZER:

Q. I do not want to put it that way —

A. It all depends on the man as to the appreciable results—on the amount —

Q. I mean the results you can appreciate, Doctor.

A. In that case I would answer your question in the negative.

Q. And in the majority of the cases you have observed of persons who use caffeine containing beverages there are no deleterious effects you can appreciate?

A. I mean to say the other way, there are deleterious results.

Q. Do you mean the most of people whom you have observed who used caffeine in beverages regardless of the quantity have experienced deleterious results that you can appreciate?

A. Yes, sir, I think so.

Q. That is your opinion now as a medical man and expert?

A. Yes, sir.

Q. You don't use it personally, I suppose?
A. Yes, sir, I have used coffee occasionally.
Q. You don't use it regularly?
A. No, sir, I do not.
Q. Do you use any caffeine containing beverage?
A. Not besides coffee.
Q. Do you use chocolate?
A. Yes, oh yes—that contains a trace of caffeine but that caffeine is negligable.
Q. Does chocolate contain about 28/100 of one per cent. of caffeine?
A. I don't know—I didn't know until today.
Q. Do you know it does?
A. No, sir.
Q. You never analyzed it?
A. No, sir.
Q. Well if it does contain 28/100 of one per cent. then it contains more caffeine than this Coca Cola syrup you analyzed don't it?
The Court: We will not go into that.

BY MR. SIZER:

Q. Do you know how much caffeine the cocoa nibs contain?
A. Do you mean the coca leaves?
Q. No, the cocoa nibs?
A. No, sir, I do not.
Q. You say that the use of caffeine results in increase of sugar in the urine?
A. Yes, sir.
Q. In all cases?
Q. That I am not prepared to answer, or to say: I am speaking of experimental work when I say that.
Q. You say you have done experimental work?
A. No, sir, I spoke or experimental work when I said that.
Q. Where do you get that from?
A. There are three authors who have worked on the subject, Rose, Jacobi and Salant.
Q. What amount of coffee do they say you would have to take in order to increase the amount of sugar in the urine?
A. I think a single dose of 70 milligrams of caffeine has produced sugar in the urine of the rabbit.
Q. How much is that reduced to grains?
A. A milligram is sixty— or sixty milligrams to the grain. I am very slow at reducing those figures.
Q. How much of a dose would that be for a man, giving

the man the amount proportioned to his weight as seventy milligrams is proportioned to the rabbit's' weight?

A. I can't do it that way.

Q. But I want you to do it that way.

A. It would not be correct.

Q. I am not asking you whether it is correct or not—just give me how much caffeine that you would have to give to a man in order to give to the man that amount to his weight as seventy milligrams to the rabbit's weight?

A. I have not opportunity to do mathematical work.

Q. Can't you tell approximately how much that would be?

A. No, sir.

Q. Well, rabbits weight about four or five pounds.

A. Rabbit will weight four pounds on an average.

Q. And the average weight of a man is generally taken at 150 pounds?

A. Yes, sir.

Q. Something more than thirty times the weight of the rabbit?

A. Yes, sir.

Q. Now, what is a milligram in order that the jury may understand, what is the difference between the metric system and the system we use here?

A. 65 milligrams to a grain.

Q. And seventy milligrams be a little over a grain?

A. Yes, sir.

Q. So, in order as to proportion it by weight a man being given the same amount as the rabbit would get thirty to forty grains?

A. As I say if it was allowable—but it is not allowable—may I explain?

Q. I am asking you a hypothetical question and ask you to figure it out and tell us how much?

A. Yes, but may I explain?

Q. What amount of coffeine would be proportioned to a man's weight as 70 milligrams to the rabbit, that would be thirty or forty grains?

A. Yes, sir. May I explain? You can't always carry proportion, you cannot carry proportion to produce certain results—the therapeutic dose —

Mr. Sizer: (Interrupting) I object to any explanation.

The Court: I think he has a right to explain it.

The Witness: I was going to use as an example a well known drug to show that you cannot possibly —

Mr. Sizer: Well, just state —

The Witness: A therapeutical dose of digitalis for the human being is an amount that will kill eight frogs.

BY MR. SIZER:

Q. These experiments, Doctor, on animals with certain drugs are of very little value in determining the effect on humans?

A. Oh no, they are of great value, but you have to find out whether that animal has greater or less resistance in the particular instance.

Q. What did you find out with respect to the comparative resistance of rabbits and men to caffeine?

A. I have never experimented on that subject.

Q. Or between frogs and men?

A. I have not compared the two.

Q. In these experiments of Dr. Rose, Jacobi and Salant in which you say they found an increase of sugar in the urine resulting from certain dose of caffeine, did they use the caffeine itself are the salt of caffeine?

A. That I cannot say now.

Q. Did that make any difference in the result?

A. It would make a difference if they used citrate of caffeine—70 milligrams of citrate caeffine would be only 35 milligrams of caffeine, if that is what you mean.

Q. Would it make any difference in action?

A. Would not make any difference in action.

Q. Suppose they used caffeine salicylate, would that make any difference?

A. Simply in the size of the dose of the salicylate which makes up a good part of the molecule and there would be less caffeine in the substance.

Q. There would be no difference in result, however?

A. No, sir.

A. And do you know what dose they used in order to determine the amount of sugar in the urine?

A. No, sir.

Q. Where did you get the report of these cases—from the work of these men?

A. I received a report of these cases from Dr. Salant.

Q. Did you get the report of the Rose case for instance?

A. No, sir, not the original report.

Q. You didn't see that?

A. No, sir.

Q. Did Dr. Salant tell you that?

Q. No, sir.

Q. Dr. Salant told you about it?

A. I have read Rose's work, but not recently.

Q. And you don't recall what he said about this particular case?

A. I do not.

Q. Did you see Jacobi's report of his case or did Dr.

Salant tell you?

A. I knew of Jacobi's work on the subject before Dr. Salant told me but I don't recollect the details of that.

BY THE COURT:

Q. How many germs were in the dose you gave? I mean to the frogs?

A. How many germs?

Q. Yes, what was the actual amount, you stated on a comparative basis the amount per gram, or the milligrams per gram of weight.

A. I think the average weight would be thirty grams, and you would multiply that dose by thirty; some weighed 25 and some weighed 40 and some weighed 45, and some more than the average weight, taking frogs as they come along, is about 30 grams; that would have to be multiplied by thirty.

Q. Well, how much?

A. Well, between 13 and 14 6/1000 of a grain per gram and you would have to multiply that by thirty to get the amount for the average frog.

Q. 14 6/1000 of a grain?

A. Yes, sir.

BY MR. SIZER:

Q. Doctor,in these experiments of Jacobi about which you have been testifying suppose he administered salicylate of caffeine and then used the trommer test in order to test the presence of the sugar in the urine?

A. Yes, sir, that is a good test.

Q. Would that be the normal test under those conditions?

A. Not necessarily, no.

Q. It would not?

A. No, sir, there might be other reducing substances present.

Q. What did you say the effect of caffeine was on the tissues?

A. On the muscles.

Q. Does it have any effect on the tissues?

A. I don't know of any; tissue is a very indistinct or indefinite term. Muscles are tissues.

Q. Then, on the muscles, what did you find on the muscles?

A. Caffeine in dilution of one part to 4000 applied to the frog's muscle coagulated it like boiling water.

Q. That is applied to the muscle?

A. Well, apply it to any muscle.

Q. Do you ever apply it to any muscle?

A. Well, to the frog —

Q. That is only when it is applied directly to the muscle?

A. Yes, sir.

Q. And not through the stomach?

A. No, sir.

Q. Now, you have expressed the opinion I believe that children should never be allowed to take drugs or anything containing drugs?

A. I did.

Q. Do you say that?

A. Yes, sir.

Q. Well, chocolate you know contains a drug, does it not?

A. Yes, sir.

Q. Chocolate and cocoa?

A. Yes, sir.

Q. And theobromine and caffeine in chocolate?

A. Yes, sir.

Q. Your opinion then is that chocolate should be positively forbidden children?

The Court: That is immaterial.

Mr. Sizer: Well, he expressed an opinion on that matter.

The Court: Well.

Mr. Sizer: We ask to exclude his answer given on his examination in chief in reference to chocolate.

The Court: I exclude it, it is immaterial either way.

Mr. Sizer: I wanted to let it go in.

The Court: You moved to exclude it.

Mr. Sizer: If your Honor will let me ask about it, but if your Honor does not I move then to exclude it.

The Court: I have excluded it.

BY MR. SIZER:

Q. Do you state in your examination that the use of caffeine would produce arterior scerosis?

A. I did.

Q. And on what do you base that statement?

A. On the experimental work which was performed by Leo Leob.

Q. Have you that work with you?

A. No, I can give you the reference.

Q. And it is solely now upon some reference reported by him that you make that statement?

A. Yes; entirely.

Q. Do any other medical works advance any such theory?

A. That is a very recent work.

Q. I say do any other medical works advance that theory?

A. None that I know of.

Q. On whom were those experiments reported by him — were the experiments conducted with human beings or animals?

A. Rabbits.

Q. And what size doses did he give them?

A. I can't tell you that now.

Q. Did he draw that conclusion, Doctor, from the fact that when caffeine is applied to the naked muscle it results in contraction somewhat like rigor mortis?

A. I think not.

Q. What was the experiment that he performed?

A. I think he injected a mixture of caffeine and adrenaline into the circulation.

Q. What is that?

A. Adrenaline is a substance derived from the adrenaline gland.

Q. Are you prepared to say which one of these two substances would contribute most to arteric sclerosis?

A. Adrenaline will do it.

Q. Will caffeine also do it?

A. I don't know.

Q. Are rabbits peculiarly susceptible to arteric sclerosis?

A. I am not aware of that fact.

Q. You are not aware that they often have it?

A. No, I am not.

Q. Referring again to this frog now which you made this injection of caffeine in, is it true a great many substances that are harmless when taken into the stomach are nevertheless very deleterious when introduced into the circulation?

A. Yes, there are some substances.

Q. For instance, milk introduced into the circulation is very injurious?

A. No sir, a small quantity of milk, it is not.

Q. It has a deleterious tendency?

A. Not a single injection.

Q. How many injections would you make?

A. You are now coming to the reaction which has nothing to do with drugs or chemistry.

Q. Well, just answer that question, much or little?

A. Can I be allowed to explain?

The Court: Yes.

BY MR. SIZER:

Q. How much milk could you introduce into the circulation direct without producing a deleterious result?

A. I don't know; I never tried it.

Q. You never experimented with it?

A. No sir.

The Court: Make any explanation that you wish to.

Mr. Sizer: He says that he never tried it.

The Court: Well he can make any explanation he wishes to.

The Witness: I think what you have reference to is the serum effect which has nothing to do with the action of drugs—the thing has to be considered by itself, of which we do not know the cause in any way ——

BY MR. SIZER:

Q. (Interrupting) Give us the citation to that work you referred to while ago Loeb ——

A. American Journal of Biological Chemistry 1910.

Q. Could you give the page?

A. No sir, I could not.

Q. You say that caffeine is not a food in any sense?

A. I do.

Q. How do you know that Doctor?

A. It does not produce in any sense any of the results that we expect from food; it does not replace tissue waste; it is an energy producer; it never produces or replaces tissue waste.

Q. Caffeine is what is known as trimethyl xanthine?

A. Yes sir.

Q. And it is known to be broken up in the body into —

A. (Interrupting) Yes.

Q. Dimethyl?

A. Yes sir.

Q. And finally broken up in xanthine?

A. Yes sir.

Q. And xanthine is one of the normal constituents of the body?

A. No sir.

Q. Is it found in the tissues?

A. No sir.

Q. Are there any xanthine derivatives found in the body?

A. No sir

Q. Then xanthine is not a normal constituent of the body?

A. No sir, it is not itself.

Q. Is it or not true that xanthine is oxidized to urea?

A. I think that is a debated question, I think not.

Q. Some authorities hold that it is?

A. I have heard it; I read in a deposition that it was but I don't think that it is.

Q. Well, do you profess to know whether that is so?

A. Yes sir, I think I have authority, in the human body it is not.

Q. You have read authorities to that effect—have you conducted any experiments along that line?

A. No, sir.

Q. What authorities have you that say xanthine is not found in the body?

A. I am referring to a work by Shittenhelm.

Gen. Cox: We submit the question of whether xanthine is in the human body has nothing to do with whether Coca Cola is an added ingredient or deleterious to health.

The Court: I understand the contention is xanthine is one of the basis of caffeine.

Gen. Cox: No xanthine in Coca Cola.

The Court: I over-rule the exception.

BY MR. SIZER:

Q. Doctor is it a fact that xanthine is found in the muscles of the human body?

A. Yes, it may be found there. You asked me if it was a normal constituent of the human body.

Q. How does it get there?

A. It is a waste product in the body being eliminated by the human body. It results from the burning up of nuclein bodies.

Q. In what part of the body are these nucleins found?

A. The nucleins?

Q. Yes.

A. They are found pretty well all through the body, particularly in the structure which we call nuclei, that is that part of the animal cell which has to do with governing the life processes of the cell.

Q. Isn't it further true that it is entirely the result of the exercises of the muscle that xanthine is produced?

A. Yes sir, I think so.

RE-EXAMINATION.

BY MR. MILLER:

Q. Dr. Boos, why is it that the body eliminates these xanthine substances?

A. Because poisonous to the body.
Q. Because it is poisonous to the body?
A. Yes, sir.
Q. And you say that is one of the constituents of caffeine?
A. Xanthine?
Q. Yes.
A. No. That is not one of them.
Q. Is it related in any way to the group?
A. It is related to caffeine—xanthine, if you will, is the mother substance of caffeine, caffeine being trimenthyl xanthine.
Q. Now then, if the xanthines were not eliminated from the body what would be the result?
A. Xanthine poisoning.
Q. State whether or not those xanthines or poisonous substances are produced by the taking of caffeine in the body?
A. I do not think it is.
Q. State whether or not in your opinion the administration of caffeine and the consumption of it will produce arterio-sclerosis?
A. I think it will.
Q. As to the administration of caffeine whether it be administrated through the stomach or the lymph sac or how, tell us the difference both as to potency and ulimate effect.
A. In the case of caffeine the difference is simply one of time and degree. If it is given into the stomach it will be taken up very slowly and a smaller amout will be absorbed at a given time—a smaller amount will circulate in the blood where it exerts its action, and it will come on more gradually and some of it will probably be excreted before the rest is absorbed, and in that way you get a milder action than from the application hypodermically or directly into the blood. The lymph sac injection or introduction stands between the injection into the circulation and giving it into the stomach.
Q. Now suppose you take a dose of caffeine consisting of 9/10ths of a grain to 1 1/4 grains; in the course of two or three hours another like dose is taken in a soft drink the way that Coca Cola is administered and then during the afternoon one or more doses are taken, what will likely be the effect on the human health?
A. Harmful, I would say.
Q. It would have a harmful effect?
A. Yes, sir.
Q. Now, you used the term "reflex irritability" on cross-

examination. What did you mean by that, in the common acceptation of the term, Nervousness?

A. Yes, nervousness.

Q. And why do you call that reflex irritability instead of nervousness?

A. Shall I explain?

Q. Yes. Explain how that is.

A. There are certain actions that are carried out by the nervous system, by portions of the nervous system, which are carried out independent of our consciousness. If you were asleep and somebody were to jab you with a pin, not strongly enough to wake you up, but still enough to hurt a bit, you will draw your hand away without waking up, and that action would be carried out without the brain by your reflex nervous system, which is the spinal cord—I mean to say that it would be carried out without the brain having anything to do with it. All of these actions which are carried out by the spinal cord without the use of the brain or without the aid of the brain, are called reflex actions. The same thing, if you hear a cannon shot, you might jump, perhaps and not realize the fact. That action is carried out without the use of the brain. Now, these actions are increased under the use of caffeine—small things which would not ordinarily make a man jump would make him jump under these conditions.

Q. State whether or not in your opinion the administration of caffeine in Coca Cola—that is where the commercial caffeine is taken and put into the product and the administration of caffeine in such beverages as coffee or tea, prepared by nature, mixed with other ingredients, would be as injurious.

A. I think not.

Q. Which would be the more potent and have the more harmful effect?

A. That beverage in which the caffeine had been added in the pure form.

Q. Now, I will get you to state if you are acquainted with any standard authors or medical writers who advocate the use of caffeine by humanity?

A. I can't think of any.

Q. State whether or not as a rule animals are more tolerant to drugs, or to caffeine, I should say, than man pound for pound of body weight.

A. I think that rabbits are more tolerant than man because it is a plant product, and in general rabbits are more tolerant to those substances which are found in the plants.

Q. What do you mean by the word "tolerant" in that

connection?

A. That is to say, it requires a larger amount compared to the body weight of the animal to produce its toxic results, of that substance.

RE-CROSS EXAMINATION.

BY MR. SIZER:

Q. You say that rabbits are more tolerant to caffeine than human beings?

A. I believe so.

Q. Do you have any experience or authority on which to base that statement, or is it mere belief?

A. It is belief.

Q. And nothing more?

A. I think I have read it but at this moment I could not give you any reference to that statement.

Q. Some man has published a statement then to the effect that rabbits are more tolerant of caffeine than human beings?

A. Yes, I think so.

Q. Well, isn't it a fact that a rabbit was never known to eat any caffeine-bearing substances?

A. Yes, of course that is known.

Q. Well, isn't it a fact that human beings, the ancestors of human beings, for hundred of years past, have consumed caffeine-bearing substances in vast quantities?

A. Yes, sir.

Q. Would not that fact tend to create a tolerance in human beings for caffeine?

A. No, sir.

Q. Well, why not?

A. Well, because—what do you mean by tolerance?

Q. You used the word—what do you mean by it?

A. I don't mean what you do. I mean resistance.

Q. Well, how do you know what I meant?

A. I meant the same resistance, not tolerance.

Q. Oh, yes, resistance instead of tolerance. Isn't it a fact that if a man is accustomed through inheriting and his ancestors have been for many centuries of time using certain substances, that he himself can use more of that substance than if he and his ancestors had not been accustomed to it, without any deleterious result?

A. You say without any deleterious result?

Q. Yes.

A. No, I say it is not possible.

Q. It is not possible?

A. No.

Q. He would have no increase in the power of resistance?

A. No, the resistance would be steadily diminished by the use of it.

Q. Then a man accustomed to taking tea and coffee could not take it without any injurious effect any more readily than any one who has not been accustomed to it?

A. I think so —

Q. (Interrupting) In other words, the fact that he has been accustomed to taking —

A. I don't quite understand it—may I repeat it and ask you whether a person who was not in the habit of taking tea and coffee could take it as readily as a person who was in the habit of it?

Q. Yes. Will he be affected by it more readily than one who is accustomed to taking it?

A. I think in one the effect would be more apparent —

Q. You know nothing about what effect it produces unless there is some appearance of it, do you?

A. You can tell by a person's general health.

Q. You believe now that there would be no difference in the effect of taking of a cup of coffee, for instance, whether it was taken by a man accustomed to it or not?

A. The action would be the same but the effect would be greater in the person who was drinking it than in the person who took it for the first time.

Q. What is the distinction between the action of it and effect?

A. A certain amount of a drug will produce a certain amount of action but the result on the individual will depend on that individual. If it has been lowered by the constant use of tea and coffee, the action will be more serious.

Q. How do you know what the result of a cup of coffee would be on a man who is accustomed to it?

A. It is very hard to measure it.

Q. Well, it is not apparent at all, is it?

A. It could be measured, yes.

Q. Well, it is apparent only in the fact that a slight stimulation results from it, is that true?

A. Well, it is followed by depression.

Q. In all cases is it followed by depression?

A. Yes.

Q. And now, you mean to state as an expert on that matter that in all cases where a single cup of coffee is taken, depression follows from the stimulation?

A. I do.

Q. Now, you say that caffeine is contained in Coca Cola

in the pure form. Is it contained in the coffee in pure form?

A. No, sir.

Q. How is it found in coffee—I mean, in the infusion of coffee or beverage as it is drunk?

A. May I have that question again?

Mr. Sizer: I will ask Mr. Hacker to read you that question.

(The question was read to the witness.)

A. I can't answer that question that way. No drug is contained in the pure form in the original substance in which it is found. The pure form is the isolated drug.

BY MR. SIZER:

Q. Well, you don't have it in the pure form in Coca Cola?

A. Yes, sir.

Q. It is not isolated in Coca Cola.

A. But Coca Cola is not the crude form it occurs in.

Q. Well, I did't ask you that. I asked you if it is not a fact that pure caffeine appears in coffee as it is drunk.

A. No, sir.

Q. That is not a fact?

A. No, sir.

Q. Free caffeine?

A. Ah, that is different, to a certain extent the caffeine is free.

Q. How much free?

A. I don't know.

Q. Isn't it a fact that it is practically all free in the form in which it is taken?

A. Practically all free.

Q. And in the bean before it is roasted the caffeine is combined with something else?

A. Yes, sir.

Q. So that when you go to prepare coffee for taking it and consuming it, you take the roasted bean and thereby alter the form in which it is originally found, that is, the form in which the caffeine originally appears?

A. Possibly; I don't know.

Q. Well, don't you know that is true—that by roasting you change the caffeine from the combined form in which it exists into a free form?

A. I admit caffeine is free in coffee as it is drunk.

Q. Now, what other substances in coffee that are supposed to produce deleterious effects are there if the coffee is taken to excess?

A. Not to my knowledge—

Q. Well, the empyreumatic oils?

A. I think there is no serious result —

Q. (Interrupting) Do you know or are you prepared to say whether that substance produces any deleterious result or not?

A. I have never heard of any.

Q. Do you know what proportion of that empyreumatic oil or caffeine is found in coffee?

A. I do not.

Q. Is it a stimulant?

A. Reflexly, yes.

Q. And of course if too much of it is taken, more stimulation will result from the use of it, the same as will result from the use of any other stimulant?

A. If you take barrels of it, yes.

Q. How?

A. I say, if you take enormous quantities, yes.

Thereupon, at 2:05 o'clock P. M., the Court adjourned until nine o'clock A. M., Friday, March 17, 1911.

CHATTANOOGA, TENNESSEE,
FRIDAY, MARCH 17, 1911.
NINE O'CLOCK, A. M.

The Court met pursuant to adjournment. Appearances, the same as on yesterday.

PLAINTIFF'S EVIDENCE CONTINUED.

Mr. Miller: In order that we may not be charged with laches—on yesterday, on direct examination of Dr. Kebler, after Dr. Kebler had been asked to enumerate authorities that sustained a certain position, as I recall now, this was the habit-forming drug—but the principle is the same, on re-direct examination, he was not permitted to make further research or produce further authorities on the subject. I took occasion last evening to go over the authorities on the subject, and I do not wish to take up the time now to possess them, but I give notice now that I will ask your Honor to hear me on that point before the trial closes.

The Court: Yes, and you can put Dr. Kebler back on the stand.

Mr. Miller: Yes, he will be here later, and I will submit the authorities to the Doctor.

The Court: You might let me have a memorandum of the authorities if you have any..

Mr. Miller: I will be glad to pass them to counsel —

The Court: I would be glad if cousel on each side would as soon as it is convenient to do so, present me with a mem-

orandum of any propositions of law out of the ordinary run, with the authorities on which they expect to rely in this case, with a memorandum of their authorities, so that I may study the question. I would be glad to get them as early as I can.. I do not mean any elaborate brief at all, just a list of the propositions and the authorities..

Mr. Sizer: As far as I know, I don't think there will be any legal propositions in the case, except those arising out of the construction of the Act.

The Court: If there are any cases construing the Act in any manner material in this case, I would be glad to have references to them.

Mr. Miller: We will have references in that respect, and will submit them and exchange with adverse counsel, and will be glad to do so tomorrow afternoon, as we think we can do it then.

The Court: In reference to the use of text books in the examination of witnesses, I have made some investigations since yesterday on that. I find there is some divergence of authorities, but on the whole, I am inclined this ruling is sounder and better ruling and the better authorities, namely: That where an expert given an opinion as to a scientific fact based merely on his own experience, any reading of text books or authorities to him on cross examination is not competent, but where it develops or appears there is on his statement that his opinion on scientific facts is based in whole or in part from his reading of the authorities and is in whole or in part an expression of his view as to the general holding among scientific men on that question, then it is competent to call his attention to the scientific authorities and ask him if they are recognized authorities and if that is established by this answer, then call his attention to statements in them that disagree with the view he has expressed. That seems to me to be the sound rule to be applied. If either counsel think there should be any modification of that rule, I would be glad to have the authority.

Mr. Sizer: I think your Honor has stated the rule correctly.

Mr. Miller: We think that in one or two instances that rule has been infringed on by counsel on the other side, and we give notice that it has, on reviewing the testimony, we will move to exclude such extracts as have been read on cross examination on this behalf. This testimony is somewhat voluminous up to this time.

The Court: I do not recall any cases where the cross-examination has been carried further.

Mr. Miller: I have not been inclined to ask the enforce-

ment of that rule, as divers of the authorities, or some of them hold you may present witnesses with text books on examination in chief.

The Court: Yes, but that is contrary to the great weight.

Mr. Miller: But, if they have infringed, I give notice that I will move to exclude that from the record.

The Court: I understand that ruling is satisfactory to counsel on both sides, and it will be enforced All right, proceed, gentlemen.

WILLIAM F. BOSS,
resumed the stand for further

CROSS EXAMINATION, Continued.

BY MR. SIZER:

Q. Doctor, do you know the work of F. W. Paby, entitled a Treatise on Food & Dietetics?

A. Yes, sir.

Q. Is that a standard authority?

A. Yes, sir.

Q. Do you know the work of G. Bunge?

A. Yes, sir.

Q. A text book of physiological and pathological chemistry?

A. Yes, sir.

Q. That is a standard authority, is it?

A. I don't recall it as such.

Q. Well, is it a good, German work?

A. It is full of errors.

Q. Full of errors?

A. Yes, sir.

Q. And you do not regard it as a good authority?

A. No, he has made many statements which are not true.

Q. You have already stated, I believe, that you considered Cusshny a good authority?

A. Yes, sir.

Q. Now, Doctor, on the subject of the discovery of sugar in urine from the use of caffeine, I believe you stated that the only authorities on that question that you are familiar with, or that you recollected particularly about, was that one by Dr. Salant?

A. I spoke of two others, one by Richter and one by Rose. The Rose article, I heard him read myself.

Q. But that has been sometime ago, and you stated on cross-examination on yesterday you did not remember the

details of his article?

A. No, sir.

Q. And the same is true of that other article?

A. Yes, sir, I have not seen it recently.

Q. This article of Dr. Salant to which you referred was published in the proceedings of the American Society of Biological Chemists, Boston, Massachusetts, December 23, 1909.

A. Yes, sir; it was read then.

Q. In that report, Dr. Salant says, does he not, that experiments carried out on rabbits show that caffeine when given in sufficient quantities —

A. (Interrupting) That is not the article that I referred to. The article I referred to was one which was published last summer during the year 1910.

Q. Wherein did that article differ from this one?

A. If you will read the results, I will know.

Q. He states in this article, did he not, that the caffeine in sufficient quantities would produce glycosuria?

Mr. Miller: I submit that if he did so state, the article is at hand, and counsel evidently has it, and the witness says that is not the article to which he referred, and thirdly; I do not recall that this witness stated on examination in chief that his opinion in that behalf was based not entirely on reading, but on the contrary on experiments and reading.

Mr. Sizer: He expressly stated that he based his statement that sugar might be found in the urine as a result of taking caffeine or these three articles. I asked him about a particular article, the only one which he himself says —

The Court: (Interrupting) He says that is not the article.

Mr. Sizer: He says a subsequent article was published, and I am trying to show that the subsequent article published is the same as this. I submit that we have not had a latter one and I assume that this is the one he is referring to.

The Court: But he has stated this is not the article.

Mr. Sizer: I want to ask him if there is any difference in the statements in this article and the one he refers to.

The Court: This is bringing out indirectly the substance of an article which the witness did not refer to, and which he did not base his opinion on. If there is anything in this article, though, that contradicts the view expressed by this witness as a scientific fact that he said was based on reading, in whole or in part, you may show that part of it.

Mr. Sizer: What I propose to show, I want to show the limitations on the statements made by Dr. Salant in this article, that is, to what extent glycosuria was produced by the taking of caffeine, and in what animal. I want to know if Dr. Salant expressed any different opinion, or stated any different results in the subsequent article from what he stated in this one.

Mr. Miller: The subsequent article would be the best evidence.

The Court: I don't think that contradicts the witness—he merely states the general facts—this would not be to contradict him.

Mr. Sizer: He left the impression and made a very broad statement that Dr. Salant has stated in this article that the use of caffeine might produce glycosuria. I am entitled to show what Dr. Salant did say about it.

The Court: Have you got the article he referred to—otherwise I sustain the exception?

BY MR. SIZER:

Q. Have you got that article of Dr. Salant's?

A. No, sir.

Q. Was there any difference between the article published last summer and the one published in December, 1909?

A. I am not sufficiently familiar with this one to tell you.

Q. This publication I have here, the report of the Boston meeting, is of December 28th or 30th, 1909, and was published in June, 1910, is that the article you refer to?

A. I would like to see the publication that you refer to.

The Court: Hand the article to the witness so that he can tell.

Mr. Sizer: Yes.

The Witness: Yes, that is the article.

BY MR. SIZER:

Q. Now, in the first place, in that article, Dr. Salant confines himself to the statement that caffeine would induce glycosuria, if given in sufficient quantities, didn't he?

A. Yes, sir.

Q. Glycosuria is a technical term for sugar in the urine?

A. It is.

Q. Dr. Salant further stated, did he not, that glycosuria was induced more readily if the rabbits were starved four or five days and then fed fifteen or twenty grains of cane sugar?

A. I don't remember that. I remember that if you feed rabbits on carrots sufficiently—

Q. (Interrupting) If you feed an animal on a sugar-producing substance, you would not naturally expect to find sugar in the urine?

A. No, sir, not in rabbits, because they live on carrots almost exclusively at times.

Q. Well, how about cane sugar?

A. I said cane sugar would act very much the same as any other sugar in that respect.

Q. Well, if you would give an animal too much of cane sugar, it would be eliminated in the urine?

A. Yes, sir.

Q. Dr. Salant also stated that experiments on cats showed that caffeine would produce glycosuria but not so readily as in the case of rabbits?

A. Yes, sir.

Q. He likewise stated no glycosuria had been observed in dogs experimented on, and it contained a large amount of hypo hydrate, although many experiments of that kind had been made.

A. Yes, sir.

Q. Do you know of any reported case in which any authority claims to have found sugar in the urine of a human being due to the use of caffeine?

A. I do not this morning, but I think there have been such cases.

Q. Now I want to read in that conection this extract from Cusshny, and ask if you agree with that: (Reading.)

> "In the caffeine diuresis, the fluid part of the urine increased chiefly, but the solids also undergo an augmentation, though not to the same extent. Among the solids, the chief increase is seen in the sedium chlorida, the nitergenous constituents undergoing less alteration, although they also arise in amount; a small amout of sugar is often found in the urine, more especially when the food has contained large quantities of sugar-forming substances, but this glycosuria is probably due merely to the large quantities of fluid sweeping some of the sugar of the blood along with it, and does not indicate any dangerous alteration in the renal epithelium or in the metabolism."

Mr. Miller: I object to that for the simple reason he has not stated that he based his statements on statements by Dr. Cusshny, either in chief or cross-examination.

The Court: I understood that the witness's opinion on sugar forming was based on scientific reading.

Mr. Miller: On those three authorities that he stated.

The Court: I think if it is based on reading, it is competent to ask him as to other authorities. I did not intend to limit the rule to the particular authorities he named.

Mr. Miller: Not so much the particular instance —

The Court: I will apply that rule both ways.

BY MR. SIZER:

Q. Do you agree with that statement?

A. No, sir; I do not. That is merely an opinion of Dr. Cusshny.

Q. Then you don't agree with Dr. Cushny?

A. No, sir.

Q. But you say you have made no personal experiments?

A. None myself, neither did Dr. Cushny.

Q. How do you know?

A. Because there is no record of them.

Q. How do you know whether he has or not, why do you make an assertion of that kind?

A. They have not put them in the record.

Q. You mean to say you have not seen it stated in his book?

A. You can't find it in literature.

Q. You don't know how many experiments Dr. Cushny made—you don't know but what he has made some.

A. He may have made some but they have not been published.

Q. You mean not reported, then?

A. Yes, sir.

Q. He may have reported them in some work that you have not seen?

A. I think it is not very likely—that is what I meant; and you knew that is what I meant.

Q. You stated on yesterday that you were not very familiar with the American works.

A. I am familiar with Cushny's works; he is a Scotchman.

Q. You are not very familiar with American publications?

A. Yes, sir; I am.

Q. Did you state on yesterday that you didn't know much about these American works?

A. Yes, sir; not about the American text books of Pharmacology, but I am very conversant with the publications on the subject.

Q. And you do not pretend to say that Dr. Cushny

has never made any experiments with respect to the production of glycosuria by the use of caffeine?

A. I don't think he has ever published any such book.

Q. Do you undertake to testify as a witness that he never made any such experiments?

A. No, sir; of course not.

The Court: I have received a letter from Dr. Witherspoon in which he makes a statement in reference to the testimony; he desires me to submit it to the counsel for both sides.

BY MR. SIZER:

Q. Doctor, the effect of stimulation, primarily, is the increased capacity for work, is it not?

A. It depends on the nature of the stimulation.

Q. The stimulation of the brain increases the capacity for mental work?

A. Yes.

Q. The stimulation of the muscles and nerves increases the capacity for physical work?

A. You cannot say that in general because you might stimulate a certain nerve and inhibit its capacity for work.

Q. Well, a stimulation of the muscles will increase the capacity for work?

A. Yes, sir.

A. To a certain extent.

Q. The exercise of the organs, what they are made for?

A. To a certain extent.

Q. And all work of every kind, whether mental or physical, involves the expenditure of energy?

A. Yes, sir.

Q. When you talk, or think or walk across the floor, you are expending energy?

A. Yes, sir.

Q. What was the specific gravity of that syrup, the Coca Cola, that you injected into these frogs and testified to yesterday?

A. I don't remember, I remember that I measured it, but I don't remember.

Q. How did it compare with the specific gravity of the blood of the frogs?

A. It was much greater, but I don't know.

Q. How much greater?

A. If I can't tell you what the specific gravity of the syrup is, I can't tell you that.

Q. Was it much greater, considerably?

A. Yes, sir; considerably.

Q. How about the specific gravity of that solution of sugar?

A. That was about the same as that of the syrup—no, I got in one solution the same and in another one half such strength.

Q. What was the strength of the sugar solution or the proportion of sugar in it.

A. I gave it before applying the Coca Cola—I diluted it so as to make it not more than fifty per cent., I diluted it probably twenty-five per cent, certainly not over fifty per cent.

Q. Did you give that in solution, give them in solution stronger than that, any solution stronger than that?

A. No, sir.

Q. Does it make any difference on the final effect of a solution of that kind, whether the specific gravity is great or small?

A. It would make no difference if you injected it into the blood.

Q. It would make no difference in the way in which you did inject it?

A. It might make a certain difference but not a serious one.

Q. You stated on yesterday that caffeine in coffee as it is taken, is practically all free.

A. As far as my knowledge goes.

Q. And caffeine in tea is also all free, is it?

A. Probably.

Q. Caffeine in Coca Cola is free?

A. Yes, sir.

Q. Now, free caffeine has the same physiological and chemical effect, no matter what you take it in, whether water, coffee, or syrup?

A. Caffeine always has the same physiological effect.

Q. Now, taking up this subject of xanthine, that is a substance that is constantly forming in the body?

A. There is no proof to that effect.

Q. Do you know whether it is or not?

A. I think probably there is some xanthine formed in the body but I never; it is very hard to find it.

Q. Xanthine is taken in a great variety of foods?

A. Xanthine, no.

Q. Well, xanthine contains a substance, or a xanthine-producing substance?

A. Yes, a xanthine-producing substance.

Q. In fact, could a man live on any kind of food not containing these xanthine-producing substances?

A. Yes, sir.

Q. What kind of food could a man live on if he didn't take anything producing xanthine?

A. What they call the purin free diet which is very well known.

Q. What kind of a diet is that?

A. Mainly vegetable.

Q. What kind of vegetables?

A. Green vegetables.

Q. A great many vegetables contain xanthine-producing substances?

A. They do, small quantities of xanthine.

Q. What kinds of things would a man have to live on in order to eliminate any xanthine-containing substances from his diet?

A. He would have to live on a kind of meat not derived from the glandular —

Q. What kind of meat is that?

A. Muscles —

Q. (Interrupting) Live on muscles?

A. The muscles of the animal, and he would get very little in the vegetable diet I speak of. A trace of xanthine-producing substances, probably would be there.

Q. Well, a man could not live very comfortably or very satisfactorily if he eliminated from his diet all substances containing xanthine?

A. That is true. I won't make that statement, I will say substances belonging to the same class as xanthine. We know very little about xanthine.

Q. Yes. You personally know very little about it, Doctor?

A. Why, I know what has been published, and I know what my own work has shown me.

Q. You do not know how much some other people may know about it?

A. If they did not publish it I cannot find out.

Q. You only mean you have not seen very much about it in literature and do not know much about it yourself?

A. I have seen very much about it, but in the end we know very little about it, in spite of a great deal of experimentation.

Q. Is it not known to be a psysiological fact, Doctor, that xanthine in combination is found in every living cell in the body?

A. Yes; it is confined to the nucleus.

Q. And the nucleus is what you might call the heart of the cell?

A. Yes, but I do not think you can speak of it as xanthine in combination because it is certainly not xanthine in

that compound. It is entirely different chemical substance.

Q. It is what you might call a xanthine-producing substance or a substance which might be broken down in xanthine?

A. Not necessarily into xanthine.

Q. What is the particular substance?

A. Nucleinic acid.

Q. Is Nucleinic Acid a food for the body?

A. No, it is not.

Q. Does it produce energy?

A. I think not.

Q. Do you know whether it does or not?

A. Yes, I do, from personal experimentation.

Q. On what?

A. I fed pure nucleinic acid, derived from yeast, to a dog for a period of three weeks, I think, and I found that there was absolutely none of it assimilated. It was completely excreted, every particle.

Q. Is that the extent of your personal knowledge of it?

A. I have done experimentation with rabbits, too, on nucleinic acid.

Q. How many experiments on rabbits have you conducted of that kind?

A. I could not count them. I worked for two years on that one subject.

Q. Experimenting on feeding rabbits with nucleinic acid?

A. Yes.

Q. Is not this true, Doctor, that these xanthine-producing bodies are at least partly oxydized in the body in the court of metabolism?

A. Yes.

Q. Being oxydized in the body they to that extent produce energy, do they not?

A. Energy is necessary to oxydize them, but whether it comes from them or not is a grave question. It comes from the body.

Q. Is it not a fact that the oxydation of the xanthine-producing bodies, itself produces energy?

A. Perhaps to a very slight extent.

Q. The extent to which they produce the energy would depend on the extent to which they were oxydized, would it not?

A. Yes.

Q. What is the size of the spinal cord of a frog compared with the spinal cord of a man?

A. I could not tell you.

Q. It is vastly greater, is it not?

A. Yes, sir.

Q. And so the effect of any substance which affects the spinal cord would be much greater proportionately in the frog than in man, would it not?

A. I think you cannot reason that way. The frog's heart is much smaller than the man's heart but the quantity of drug to effect a frog's heart is not nearly in proportion to the size of the frog's heart to the man's heart.

Q. Suppose you have a substance which acts directly on the spinal cord, though, would not the action of that substance be much greater and more potent in an animal having a large spinal cord than in one having a small spinal cord?

A. Yes, it would be more potent in the case of an animal having a large spinal cord. The higher organized the central system is, the more developed, the greater would be the action from any nerve poison.

Q. Doctor, do you draw any distinction between harmless habits and harmful habits?

A. I do, decidedly.

Q. For instance, a man may form a habit of drinking lemonade.

A. Yes.

Q. And although he may get accustomed to doing that so that he wants to do it every day, that would not be such a habit as he might incur by taking morphine, for instance?

A. No.

Mr. Sizer: Your Honor, I have a work I will present this witness but he says he does not think very much of it. It is a work, however, that I expect to prove is a standard authority and I would like to have the privilege of submitting to the witness some excerpts from that authority, conditioned on my showing hereafter that it is a standard authority.

The Court: I do not think that can be done. I think if the witness says it is not a standard authority, that ends it so far as his examination is concerned.

Mr. Sizer: I submit that puts it in this situation: If the witness comes in and knows there are contrary views to his and says they are not on good authority, that absolutely deprives us of the benefit of cross-examining him on that particular.

The Court: I think there must be a limit to the cross-examination and that is a reasonable limitation.

Mr. Miller: I will say to counsel that Doctor Boos will probably remain here for some days and after he proves that fact by his witness, the fact he just stated he expected

to prove, I will be glad to give him the opportunity to cross-examine Doctor Boos upon that.

The Court: Where a witness says a book is not good authority, I think that limits it.

BY MR. SIZER:

Q. You were a witness in what are known as the Bleached Flour cases, were you not?

A. I was.

Q. Did you testify in that case as follows:

"There are some substances like vinegar or acetic acid, salt, baking powder, benzoic acid or benzoate of soda, alcohol and the like, which are among articles of human consumption which may become poisonous upon the injection of proper quantities." ?

A. No, I did not so testify. That is a mistake. I did not include alcohol in those.

Q. You did not?

A. No.

Mr. Sizer: I am reading from the notice of judgment.

The Court: That is immaterial.

The Witness: It is perfectly true as to the other substances, but to the best of my recollection I did not include alcohol. If I did, I did not intend to.

BY MR. SIZER:

Q. Alcohol is a common article of human consumption, is it not?

A. Yes.

Q. With respect then to these other substances, you did undertake to say that they might become poisonous upon the injection of proper quantities?

A. I did.

Q. But that they would not be poisonous in small quantities?

A. I did.

Q. Why is that, Doctor?

A. Because a good many of those substances, like common salt, for instance, are necessaries of life. To a certain extent the body requires them for its physiological economy, to carry on the processes of life, but when given in large quantity they become a burden and encumbrance on the system and then act as foreign bodies, or poisons,—whereas in other cases certain of those substances occuring very frequently in the food of man, although they are not in the nature of foods themselves, the system has become equipped, has been equipped by nature with certain mechanisms which render these substances harmless, or less

harmful than they are before they enter the system. That is the case with benzoate of soda.

Q. And acetic acid?

A. Acetic acid is a food.

Q. Acetic acid, as it appears in vinegar?

A. Why, yes.

Q. How about baking powder?

A. Baking powder is not in any sense a food, and is purely inorganic. It is composed of tartaris acid, and sodium bicarbonate. Bicarbonate of soda to a certain extent is useful to the body, but the other constituent, tartaric acid, may also be termed a food if not taken in excess.

Q. Is tartaric acid an inorganic substance?

A. No; that is an organic acid.

Q. Harmless in small quantities but injurious if taken to excess?

A. Not in small quantities; it is not only harmless but it is a source of energy.

Q. In other words, it is a stimulant?

A. Yes—well, if you will, I do not like that indiscriminate use of the word stimulant.

Q. You do not like that word?

A. No. It does not apply.

Q. What was the amount of caffeine that you administered to those frogs that you killed? Just express it in fractions of a grain—in the Coca Cola syrup.

A. For twenty frogs the amount required was 13/100ths —well, you wanted it in grains?

Q. Yes.

A. Was 13/6000ths. It is hard to make the fraction different because it is —

Q. Just say what fraction of a grain it would be, and what was the total weight of the frog.

A. I cannot —

Q. Give it, just in the fraction of the grain.

A. 13/6000ths of one grain. That is a fraction of one grain. 13/6000ths of a grain was required in the case of twenty frogs, and five frogs required 14/6000 of a grain.

Q. You mean 13/6000ths to the frog?

A. Pardon me—to the gram of body weight.

Q. What would that be to the frog, Doctor?

A. That depends upon the frog. There were twenty-five of them and no two weighed the same.

Q. What is the average weight?

A. About one ounce.

Q. What did that amount to in fractions of a grain per ounce, assuming a frog weighs an ounce?

A. You have to multiply thirteen in one case and four-

teen in the other by thirty.

Q. Would you mind figuring that out on the blackboard?

The Court: It would be just about 1/15th.

BY MR. SIZER:

Q. It would be about 1/15th, if that is satisfactory. That is about the way we figure it out. That is about right?

A. I think so.

The Court: That was the grain of caffeine in the compound and not the grain of the compound?

The Witness: No; that was the amount of the caffeine.

Mr. Sizer: In the compound, per frog.

BY MR. SIZER:

Q. Doctor, does the administration of caffeine result in any increase in the elimination of carbonic acid gas from the lungs?

A. I do not know.

Q. You do not know?

A. I do not know.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor, you were presented with the work of Doctor Cushny and there was read to you on page 255 an extract a portion of which was this:

> "But this glycosuria was probably due to the large quantities of fluid sweeping some of the sugar of the blood along with it." ——

You stated further that Doctor Cushny had made no experiments of his own. I will ask you whether or not the extract read to you confirms you in that view, and if so why?

Mr. Sizer: I object to that question. The extract shows for itself what it is.

Mr. Miller: I submit this is a matter of technical knowledge and if there is a construction to be put on it, it should be by the medical profession alone from the context of the language. I submit this witness has a right to state what that is.

The Court: Without stating this witness's conclusion, you may ask him if there is any real technical or medical construction of a phrase of that sort.

BY MR. MILLER:

Q. Is there or not a construction given by medical men

to phraseology of that sort, where the term "probably" is used in connection with the remainder of that language, that gives a distinct impression to the medical profession as to whether or not that is a matter of expert knowledge or merely the man's opinion?

Mr. Sizer: I want to submit that is not a proper question. The language is there and speaks for itself.

The Court: As I understand the question, it is whether the use of the word "probably" has a specific meaning in a technical or medical way and is not the result simply of his own experience. I will permit the question to be answered.

The Witness: Well, it is rather difficult to answer that question by yes or no. May I explain?

The Court: Is there any such general rule of construction that the word "probably" has any such meaning as that?

The Witness: I don't know just exactly whether I was asked to tell whether it meant that he had not performed any experiment or whether it was simply his opinion. He may have performed experiments, but these experiments did not show this fact to be the case.

BY MR. MILLER:

Q. Probably that does not imply that he has or has not performed experiments but merely implies the result.

A. It implies as to whether this fact has been proven by experiment.

Mr. Sizer: I submit that is not competent.

The Court: It does not change the meaning—the ordinary meaning, of the word "probably," and it is immaterial.

Mr. Miller: Speaking from another point of view, I submit that he has the right to tell what construction is ordinarily given that by the profession, a word in that connection, what that word means.

The Court: The witness answered and said that it was not a technical word, that the word was probably used like any other expression, and it is not a subject for expert opinion.

BY MR. MILLER:

Q. I will ask you to refer to page 249 of Cusshny's work and state what he shows with respect to the injection of large quantities of caffeine and what symptoms follow.

Mr. Sizer: I object to that. I have the right on cross-examination to call his attention to certain language in medical works and ask him whether or not he agrees with it. That is the extent to which medical authorities can be

used, and then counsel cannot on re-examination of his own witness get the medical authorities into the record by reading them to his witness and asking him whether he agrees with them or not.

The Court: You asked him about a portion of a work bearing on one question, as I understand it, the sugar-forming tendency.

Mr. Sizer: Yes, that is right.

The Court: If there is any other portion of that work that modifies or contradicts or explains the portion that you read, about the sugar-forming tendency, it may be read to him; but the general opinion of that author on the subject of caffeine is not competent. If the passage refers to or relates to the sugar-forming tendency and modifies or contradicts the statements made in any way, it may be read.

Mr. Miller: Your Honor please, I do not pretend that it does modify or explain as to the sugar-forming tendency. I am not prepared to say that, but as counsel has proven that this is a standard treatise and as counsel ha sput a portion of it in evidence, I submit that to permit counsel to utilize that portion and that portion alone, that that does contradict the rule of evidence as defined by Greenleaf.

The Court: I hold that it is not competent. I shall apply that rule now. We have got to limit the introduction of this technical matter, and I shall apply that rule to both sides impartially. I think that will give us a fair result.

BY MR. MILLER:

Q. I will ask you to look at this book and see if there is anything there that contradicts the statement with respect to the formation of glycosuria just read to you.

The Court: The witness may examine the book after he leaves the stand and if he finds it you may put him back on.

Mr. Miller: All right. I will ask leave to do so and I will leave the book with you, for the present, Doctor.

BY MR. MILLER:

Now, as to the mater of stimulation, Doctor, and what follows. Suppose that a particular function of the body be stimulated or exercised more than normally, what will be the result?

A. Why, you would invariably draw upon—either this stimulation would lead to disastrous results if the body could not answer to it, or else you would draw upon the re-

serve fund of energy which the organism always has, to answer the stimulation.

Q. Applying that to the brain, which I understand it stimulated by the use of caffeine, what will result in the case of repeated doses of caffeine from 91/100ths to one and a quarter grains?

A. There will be repeated stimulation, followed in every case by compensated fatigue, and in the course of time that would lead to serious disturbance if the functions of the brain.

Q. You were asked yesterday, I believe, to produce any authority that showed that depression did follow the use of caffeine. I asked you that on cross-examination. I will ask you if you have those authorities at hand, and if so, refer to them and tell in substance what they say on that subject.

A. Rivers & Weber, German physiologists, 1907— carried out a piece of experimental investigation on human beings in regard to the action of caffeine on muscular work, and in this investigation it was shown that in some cases the fatigue—that is, the depression, was greater than the stimulation from caffeine, the depression following upon it.

Mr. Sizer: We would like to have the books, if he has them.

Mr. Miller: We will be very glad to supply the page.

The Witness: I have not the page down here.

Mr. Hirsch: It will be enough if they will submit those books to us with the paging.

Mr. Miller: They were in Mr. McConnville's room all day yesterday and will be to-day.

BY MR. MILLER:

Q. What else, Doctor?

A. Then Weidel in a monograph on the subject of tea and coffee speaks of the fatigue which is produced by the use of coffee after the stimulation.

Q. Yes. Any others?

A. Those are all I have just now—oh, Lauder Brunton.

Mr. Sizer: How was that first name?

The Witness: Lauder.

Mr. Sizer: What edition was that?

The Witness: That was in the Practioner, London, 1906, volume 76, pages 38 to 47; that is the article. He speaks of the fatigue which is produced by tea and coffee and other caffeine beverages.

BY MR. MILLER:

Q. Now, state whether or not Lauder Brunton is re-

cognized throughout the civilized world as a standard authority and a man of repute in his profession.

A. He is.

Q. I will just ask you to read what Lauder Brunton says on that subject as to caffeine.

A. This is in regard to the action of caffeine?

Q. Yes.

A. (Reading) "Although it prevents the sensation of fatigue from being felt for a while, yet exhaustion finally comes to mind and body, with disinclination, mental and bodily exertion, and it tends to disturb the power of doing any useful work, either mentally or bodily. The power of self-restraint is diminished and the person becomes nervous, unduly sensitive and emotional. In addition to the action on the nervous system —"

Mr. Sizer: (Interrupting) I didn't ask the witness anything about that except with reference to the authority that states that depression followed the use of caffeine; I simply want to confine his re-examination to that point.

The Court: It will be so confined.

BY MR. MILLER:

Q. Do the extracts you are about to read deal with depression?

A. Yes, sir.

Q. Then read it.

A. "In addition to the action on the nervous system tea is a powerful stimulant to the circulation and if abused will tend to weaken,"—weakening being depression.

Q. Now, as to the xanthine-producing substances, what did you mean by that when you stated that they were taken into the body and xanthine was afterwards formed therein, what is the process of the xanthine formation and why is it formed?

A. You nean in general?

A. Yes.

A. Under ordinary circumstances in the absence of caffeine or caffeine-containing substances, xanthine if it is formed in the body is formed by the breaking down of nucleinic acid.

Q. And what is the occasion for the formation of xanthine, what is it?

A. It is cell repair, it is the replacement of tissue which has become useless, which has outlived its usefulness, by new tissue—the old tissue has been broken up in such a way that it cannot be properly eliminated from the body and it is in this way that the xanthine bodies are formed in the human body.

Q. Then what becomes of the xanthine bodies?

A. Under all ordinary circumstances the xanthine bodies of a certain type—you see that includes a great many different substances that re-act chemically very differently, but xanthine is formed as decomposition product of nucleinic acid, and it may possibly be further broken up into uric acid and allangoin.

Q. How is it exuded or how is the body relieved of it?

A. I think very likely the small quantity of uric acid which is contained in 24 hours of the human life, arises from the nuclein acid destroyed —

Q. (Interrupting) What does result from the formation of uric acid if it is not discharged from the body?

A. It is apt to produce intoxication.

Q. And by that you mean what?

A. Poisoning.

Q. Now, if you increase the normal supply of uric acid by taking tea, for instance, or these xanthine forming products, what will be the result?

A. I think that caffeine does not increase uric acid in the human—caffeine is a trimethylxanthine, and I think there is nothing to show that the body is capable of breaking up caffeine into anything other than pari-xanthine, theophyllin and theobromine, and possibly mono-methylxanthine.

Q. You say break it up in parixanthine, state whether that is a poison.

A. Yes, sir. That is to say, I think from caffeine, xanthine itself not being formed, there being no authority to show it is, but parixanthine is formed, theophyllin, theobromine and two kinds of monomethylxanthine.

Q. Now, is caffeine ever prescribed or administered by a reputable physician or physicians or its use advocated by text writers to your knowledge for healthy persons, persons who are in normal health?

A. No, sir.

Q. How is it used and prescribed? That is, for what class of persons?

A. Caffeine is given most extensively and commonly to increase the elimination of fluids from the body; that is to say, dieuretic, to increase the flow of urine.

Q. Is it or not true that in proportion to the brain of a person the effect of caffeine increases, that is, in proportion to the size of the brain, all things else considered?

A. Caffeine being a nerve poison its influence upon the animal organism will be greater and more developed on the central nervous system. The higher the development of the brain in the creature the more intensified the re-

action of caffeine will be in that creature.

Q. As compared with man, is the child's brain larger or smaller, pound for pound of body weight?

A. Smaller.

Q. I say, the child's brain as compared with that of man.

A. No, pardon me. About the same size as compared to body weight.

The Witness: Pardon me, I have another reference here that I would like to give.

Mr. Miller: Give that, please.

The Witness: This is another reference on the fatigue produced by caffeine.

BY MR. MILLER:

Q. And by that you mean depression?

A. Yes, sir.

Q. That you were asked by counsel to produce on yesterday?

Yes, sir; it is by Richaud, professor in the University of Paris, in his text book on pharmacology and therapeutics, the title of which is the following: "Precis Therapeutique et De. Pharmacolagie, 1908," pages 808-9.

Q. Is there any other explanation that you desire to make, Doctor, in reference to any part of your testimony?

A. No, sir.

Mr. Miller: Then you may re-cross examine him.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. Doctor, what doses of caffeine do these authorities say produce these injurious results, or in what way were they administered?

A. In which case?

Q. In any of them; take them one at a time. The first man you spoke of it. Did he say anything about the quantity of the caffeine that would result injuriously?

A. Rivers & Weber. Those were ordinary doses, such as were taken in ordinary life.

Q. Does the article so state?

A. Yes, sir; you find it in the reference.

Q. Rivers & Weber?

A. Yes, sir.

Q. And you say they state in that extract those were the ordinary doses of caffeine?

A. No, sir; but the doses are given.

Q. What are the doses?

A. I don't remember.

Q. Are Rivers & Weber standard authorities?

A. Anything which is published in the Journal of Physiology is standard.

Q. You say they are standard authorities?

A. It is a very good piece of experimental work.

Q. Do you know who they are, or where they live?

A. No, sir. Mr. Sizer, if the quantities used were toxic, the experiments would be valueless from a physiological point of view.

Q. Well, I didn't ask you anything about that. I was asking as a matter of fact what these different people say, what dose was given. What does Wiegel say about the quantity of caffeine?

A. Weigel says that the constant use of tea and coffee in small quantities variably leaves a nervous exhaustion.

Q. Are you reading now from the authority?

A. No, sir; I am reading from my note.

Q. You have, however, the authority here?

A. Yes, sir.

Mr. Miller: He means that we have it.

BY MR. SIZER:

Q. Brunton says that according to that experiment that you read that tea, if abused, will lead to serious consequences.

A. Yes, sir.

Q. Brunton is the author of Theurapeutics of the Circulation?

A. Yes, sir.

Q. And I suppose that you consider him a good authority.

A. Yes, sir.

Q. I wish to read you from page 145 of this work and ask you if you agree with what Doctor Brunton states there. Speaking of cardiac nutrients — (Reading.)

> "Amongst these we have a series of bodies to which the term of purin bodies had been applied—xanthine hypoxanthine, methylxanthine, dimethylxanthine or theobromine, and trimethylxanthine or caffeine. All these bodies are probably injurious in large quantities, but just as a few cinders may help a fire, so when used in small quantities they are often very useful. Beef-tea and extracts of meat have little or no nutritive action, and life cannot be sustained upon them, but they are useful stimulants as was shown by Parkes in the Ashanti campaign."

The date of that work is 1908. Do you agree with that?

Mr. Miller: My objection is, first I did not go into that on redirect examination. I merely asked this witness to produce authorities on one particular subject. He produced them and read one of them. This does not bear on that subject at all, and hence I say that this opens an entirely new field, namely, that of the circulatory system, and therefore is not in response to anything brought out yesterday, or with reference to which I interrogated the witness again this morning.

Mr. Sizer: He questioned him quite extensively on the subject of xanthine, and this is directly bearing on the xanthine question. The question of effect in the human body.

The Court: How does it contradict or affect testimony of this witness?

Mr. Sizer: The witness stated that xanthine and theobromine and pari-xanthine, these things are poisons. I quote this authority who says they are useful articles in the human body.

The Court: You may ask him.

BY MR. SIZER:

Q. Do you agree with that, or not, Doctor?

A. I don't agree with that.

The Court: The exception is overruled.

Mr. Miller: We desire to note an exception.

BY MR. SIZER:

Q. You say that if a man's name appears in the Journal of Physiology, he is a good authority?

A. As a rule.

Q. Has this man Dr. Bunge, published any articles in there?

A. Yes, sir.

Q. Have you considered him a standard authority?

A. I object to his text books.

Q. He is a good man generally, but wrote a bad text book?

A. He is a dreamer.

Q. Has the nightmare?

A. Yes, sir.

Q. And you say that you never knew doctors to prescribe caffeine, theobromine or pari-xanthine for persons in good health, did you?

A. I can't be responsible for what doctors prescribe.

Q. Well, didn't you make that answer to a question of Mr. Miller, physicians did not prescribe caffeine and theobromine and perhaps some other kindred substances to people in good health?

A. Yes, sir.

Q. Well, physicians do not prescribe anything to people in good health, do they?

A. It is a question whether we can determine always whether a person is in good health, I think the teaching of hygiene to people—in schools—

Q. (Interrupting) I am not asking you about the teaching of hygiene to people in the high schools.

The Court: We will not go into that.

BY MR. SIZER:

Q. This theobromine, that is dimethylxanthine, one of the xanthine bodies, this is the active alkaloid in chocolate and cocoa?

A. Yes, sir.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Just a moment, from this treatise, on this page which adverse counsel has read to you, namely Brunton, page 145, I will ask you if there appears this statement in respect to caffeine, immediately following that which counsel read, and in the same paragraph: (Reading.)

> "Amongst the most powerful cardian nutrients appears to be glucose; for Locke found in his experiments that the addition of glucose, even in very small quantity, to a saline fluid greatly increased its nutritive effect upon the isolated mamalian heart. Other sugars have less action. Their nutritive effect apparently runs parallel with their susceptibility to fermentation, glucose standing far ahead of the others. Caffeine in large doses acts as a muscular poison, and tends to cause strong contraction, ending in rigor of the muscles. Its effect in small doses upon the heart appears to be that it increases the muscular contraction, and strengthens the ventricular beats."

Do you find that statement there?

Mr. Sizer: I submit that does not contradict him in any way, what he has read to the witness.

The Court: Well, it is a question —

Mr. Miller: That is a part of the text.

Mr. Sizer: I don't object to its going in, but submit it is not proper examination.

The Court: Well, we will just let it stay in and save time.

(Witness Excused.)

J. R. MUSSER,

the next witness introduced on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Dr. Musser, where do you reside?

A. Philadelphia.

Q. What is your profession?

A. Medical practitioner, physician.

Q. How many years of practical experience have you had, Dr. Musser?

A. Since 1877.

Q. You graduated where?

A. In the University of Pennsylvania.

Q. Have you ever had any professional connection with that institution since?

A. Ever since graduation, I have been connected with the institution, and am at present Professor of Clinical Medicine.

Q. How long have you been a Professor in that institution?

A. Twelve years.

Q. What is clinical medicine, what do you mean by that term?

A. It is practical medicine, so to speak, the study of cases and the application of treatments in those cases.

Q. State whether or not in that character of practice you are brought face to face with the people?

A. I have charge of the Medical Boards of the hospital in connection with my professional position, and hence, am brought face to face with them.

Q. And are you a member of the American Medical Association, Doctor?

A. I am a member of it; I have been President of that organization.

Q. What kind of an organization is the American Medical Association; what is it?

A. It is an organization of the medical profession, the entire medical profession.

Q. Of the United States of America?

A. Yes.

Q. And you have served as President?

A. Yes, sir.

Q. With what hosptals are you connected now?

A. The hospital of the University of Pennsylvania, and the Presbyterian Hospital, attending physician.

Q. Are you consulting physician to any other hospital?

A. Quite a number.

Q. Located where?

A. In Philadelphia.

Q. Have you written any books on medicine, or treatises on medical topics, or subjects, and if so, what?

A. Treatises on medical diagnosis.

Q. Is that a text book?

A. Used as a text book.

Q. By the medical profession throughout the country?

A. Yes, sir.

Q. Are you, or not, the author of any other treatises on medicine?

A. Various articles in systematic works on medicine and therapeutics; editor of Therapeutics published recently by Saunders.

Q. How many volumes of that?

A. Three.

Q. State whether or not during your career as a physician, student and teacher of medicine, you have had occasion to observe the effects of the administration of caffeine on the human system.

A. I have.

Q. Have you or not prescribed it.

A. I have prescribed it.

Q. For what diseases?

A. As a stimulant to the renal functions.

Q. And by that you mean what?

A. The kidney, the action of the kidney, a stimulant for the brain and nervous system.

Q. Why is it prescribed for the kidney, if it is prescribed?

A. In order to increase the amount of the action, the activity of the kidney, increase the amount of the urine.

Q. If the kidney is in normal condition, is it prescribed?

A. No.

Q. If the brain or spinal cord is in normal condition, is it prescribed?

A. No.

Mr. Sizer: I submit that it is not a proper method to examine for the reason that your Honor said a while ago on the cross examination of Dr. Boos, that is a self-evident proposition, that a Doctor don't prescribe for a well man.

The Court: Well, that is immaterial.

BY MR. MILLER:

Q. State, Dr. Musser, or rather, I should ask you how caffeine affects the nervous system and how it affects the brain or heart, if it does?

A. It affects the nervous system by causing an excitement on account of which you have headaches, perhaps tremulousness, irritability of the nervous system and heart by increasing its activity, and possibly causing palpitation; of the stomach by direct local effect, irritating, bringing about increased secretion and causing excess of acid, and in other ways impairing the digestion.

Q. To what do you ascribe this action on the heart?

A. It may be the direct action or it may be through its effect primarily on the stomach, it is rather difficult to say.

Q. If it be through the stomach, what would be the course of the action?

A. What is called reflex action, causing indigestion and secondary palpitation.

Q. State if you have seen and have a copy of the analysis made by the witness, Dr. Fuller, of the Coca Cola product that was seized, which is the subject of the present controversy.

A. I have seen such an analysis.

Q. Have you a copy of that in your possession, Doctor?

A. I do not believe I have it now.

Q. Well, I pass you what purports to be a copy of one of the analyses, and I will ask you to file it as exhibit No. 1 to your tesimony, and also, I will ask the stenographer to copy it, that it may not be lost, in the record, and then state, Doctor, from a study of that analysis whether or not there is any neutralizing ingredient or agent in connection with that mixture, that would offset or prevent the effects of caffeine, which you have stated would be the natural effect of its administration.

The Court: Before he answers that, one of the jurors wants to be excused.

(Thereupon the Court took a recess for five minutes.)

AFTER RECESS:

Mr. Sizer: We object to that question, the witness is not qualified as a chemist.

Mr. Miller: I submit he does not have to qualify as a chemist.

The Court: I overrule the exception.

Mr. Miller: He has qualified as a physician, and he has been asked for the effect on the human system.

Mr. Sizer: No, he asked whether any other substance that would interfere with the effect of caffeine; that is a chemical question.

The Court: On the human system. The question is all right.

BY MR. MILLER:

Q. State whether there is any neutralizing agent to offset the effect of caffeine on the human system.

A. There is not.

Q. State whether or not caffeine administered in the doses and in connection with the other ingredients that are shown on that analysis in your opinion there, in the syrup as it is made up with the other ingredients there, and in the proportions shown on that analysis, are in connection with the six or eight ounces of carbonated water, might prove injurious to health, or might have any effect on health, and is so, what that effect would be.

A. Depending on the constancy with which it was taken, the effect on the health would be that of stimulation, followed by secondary effects of exhaustion or fatigue.

Q. Would that be beneficial or otherwise?

A. It would be quite serious; furthermore, the effect would be to show a disturbed or over-stimulating of the nervous system, so as to produce the series of symptoms I have mentioned, the local effects on the stomach which I have also detailed.

Q. Now, state whether or not the administration of that mixture there, as it is shown on the formula you have, or in connection with the carbonated water, as I have indicated, would have the same effect on all persons, or whether its effects would vary with different persons.

A. The effects would vary with different persons.

Q. What class of persons or classes of persons would likely be more susceptible to its effects?

A. Those that are in poor health, those that are of so-called nervous temperment, or are of unstable nervous system, on children, on young people, the effect would be very serious.

Q. State whether or not it is true that the administration of a single dose of it, as I have indicated, might produce symptoms such as you have described in that class of persons that you refer to, namely, children and nervous persons.

A. It might.

Q. State whether or not caffeine is a habit-forming drug.

A. I consider it such.

Q. Now, on what do you base that statement?

A. Upon the fact that once taken or taken over a period of time, there is a desire or craving of the system to repeat the dose.

Q. Has that been the result of your observation and experience, and extensive treatments, Doctor, at hospitals?

A. It has.

Q. Is caffeine a food?

A. It is not.

Q. Why not?

A. It does not supply the tissues or energy.

Q. State whether or not you have treated patients for caffeine.

Mr. Sizer: I object to that, the witness has not qualified as a pathologist, and the question is as to whether caffeine is a food—he is not competent to answer.

Mr. Miller: I submit he is qualified after the extensive teaching and practice he has had.

Mr. Sizer: But he has practiced as a physician.

The Court: I think the exception is well taken under the witness qualifies.

BY MR. MILLER:

Q. State, Dr. Musser, whether or not you are prepared to say whether or not it is a food in your opinion, and if so, tell what your qualifications in that respect are, before answering.

Mr. Sizer: I prefer that he state his qualifications first.

Mr. Miller: State your qualifications.

The Witness: Simply that of a physician who has observed the effect of caffeine and caffeine-bearing substances upon the human system.

BY MR. MILLER:

Q. Have you or not observed the effects of foods and studied those on the human system?

A. Yes, I have.

Q. For what number of years?

A. Ever since I was engaged in the practice of medicine.

Q. And that has been for how long?

A. Thirty-two years.

Mr. Miller: I submit that he is qualified to speak, your Honor.

The Court: Have you made a study of observed effects, as distinct from the outward effects, so to speak, the symp-

toms of illness, and matters of that kind, sir?

The Witness: I don't quite catch.

The Court: I made the physiological changes that were made and the chemical reaction following it so as to qualify yourself to be able to state when a thing does or does not form tissues.

The Witness: May I explain. As a physician in charge of cases, we require tissue building, that is to select material to build up these tissues, and therefore, in that sense, I should think —

The Court: You have observed the building up of the tissues?

The Witness: Yes.

The Court: I hold him competent.

BY MR. MILLER:

Q. You have had a practical experience?

A. Yes, sir.

Q. Rather than a laboratory one?

A. No laboratory one.

Q. State whether or not caffeine is a food.

A. I don't consider it such.

Q. Why?

A. Because it does not biuld up the tissues, it does not give energy and does not aid in the repair of the organism.

Q. State whether or not you have been called on to treat persons afflicted with caffeine poisoning.

A. I have.

Q. Now, after the caffeine was withdrawn from them what was the condition of health that followed, was it improved or not?

A. It was.

Q. Assuming that the mixture of which you have the formula, be administered either as Coca Cola syrup or in connection with carbonated water, state whether or not, in your opoinion, it would be more harmful to the person consuming it than if a like amount of caffeine were taken in a cup of tea or coffee as beverage at meals, and if so, why.

A. It would be more harmful, because the latter is usually taken accompanied with a considerable amount of food, whereas, the former is taken with the stomach empty, and hence, the direct local effect would be greater, there would be more likelihood of greater absorbtion and serious effect upon the nervous system.

Q. What has been your observation as to the proportion of people who are injuriously affected by the taking of caffeine, whether in soft drinks and beverages, or taken

in tea and coffee.

A. That would be a very difficult thing to answer. Perhaps only in this way: in my clientele, there is not a day I do not see two or three patients that I must discontinue the use of either one of these beverages because of the bad effect I see, but I can't give the exact proportion.

Q. And that is due to what ingredients?

A. To the caffeine.

Q. To the caffeine?

A. Yes, sir.

Q. State whether or not in your opinion, the use or consumption of Coca Cola, either in the syrup form, as shown by the analysis which you have, or in carbonated water, as previously indicated, would affect the normal individual, and if so, how.

A. If continued, it seriously would, in producing various symptoms of chronic caffeine poisoning.

Q. Now, would it affect the abnormal person or the person who was in depleted health, or who was suffering already from nervous debility?

A. It would increase the irritability or the excitability of the individual, it would more quickly bring about a recurrence of those symptoms, and they would be more aggravated.

Q. Is the average man in normal health, or not?

A. Well, that is —

The Court: That is purely a question of definition.

The Witness: Yes.

Mr. Miller: I mean the everyday man that you come in contact with.

The Court: If the normal health is the health of the average man, it is. You might ask him in what sense he uses the term "normal health."

BY MR. MILLER:

Q. I will ask you in what sense you use that word.

A. A man who is capable of doing a normal amount of work of an individual of such size and weight, that an individual of such size and weight could do, that his functions are all normal, that he sleeps the usual time required for such individuals, and he can do all this without the use of stimulants or artificial agents to bring that about.

Q. Is or not caffeine an artificial agent?

A. It is.

Q. If stimulation be produced by it, is it normal or artificial?

A. Artificial.

Q. What is the effect of artificial stimulation on the

human health?

A. The effect is to stimulate primarily and eventually to cause depression, followed by depression and exhaustion.

Q. I mean by that that whether or not it is ultimately harmful.

A. It is harmful.

Q. Do you, or not, have occasion largely to treat stomach troubles and stomach disorders?

A. Yes, sir.

Q. How many people are perhaps in these hospitals where you have immediate charge, Doctor?

A. How many?

Q. Yes, on an average.

A. I have charge of forty beds in one hospital and about forty beds in another—one hospital is continued service and the other hospital four months of the year.

Q. Are these beds usually filled with patients?

A. Yes, sir.

Q. For a consulting for how many other hospitals, Doctor?

A. Six.

CROSS EXAMINATION,

BY MR. SIZER:

Q. Do you use tea and coffee in these hospitals?

A. It is used.

Q. And you allow it to the patients as a regular part of their diet?

A. Not by any means.

Q. Well, all of them take it.

A. We take it away from those it is necessary to take it away from.

Q. Unless there is something peculiar about the patients that induces you to think that tea and coffee may hurt them, you give them coffee and tea just the same.

A. Well, I have nothing to do with that.

Q. Well, you know it is done?

A. Yes, sir.

Q. In the hospitals?

A. Yes, sir.

Q. Now, the fact is, Doctor, that the question of whether the use of caffeine-containing beverages is injurious, it depends on the quantity taken, does it not?

A. Not necessarily.

Q. Well, it is a fact that caffeine-containing beverages may safely be taken in smaller quantities with out injurious results.

A. I doubt it.

Q. Didn't you say in the deposition that you gave in this case a few months ago in Philadelphia?

A. I don't remember.

Q. Didn't you make this answer to a question asked you—you did testify in this case?

A. Yes, sir.

Q. Now, I will call your attention to it. "Q. The effect is dependent upon the quantity taken and upon the individual?" and your answer was, "Yes, and partly upon the individual."

A. That is true, yes, sir.

Q. The effect does depend on the quantity taken?

A. The quantity taken and the amount absorbed.

Q. The amount absorbed?

A. Yes, sir.

Q. Now then, Doctor, if you take caffeine in the form of hot coffee, a hot drink, more is absorbed than in a cold drink.

A. If it is taken on an empty stomach.

Q. Well, don't you know the degree of absorbtion is greater with a hot drink than a cold drink, the rapidity of absorbtion?

A. No, sir, I think physiologists so state.

Q. You don't qualify as a physiologist?

A. No, sir, I do not.

Q. Now, Doctor, don't you know it to be a fact that tea, for instance, is probably taken more extensively beteween meals in this country than at meals?

A. I do.

Q. And don't you know it to be a fact that in some European or Eastern countries, coffee is taken as extensively or more extensively between meals than at meals?

A. Yes, sir.

Q. Have you had any experience in making observations as to the effects of caffeine, except on people who have come to you to be treated?

A. Only from general observation of the effects of the tea or coffee habit upon communities.

Q. Well, now, that is just in a general way, as you say —

A. No, what I gather from —

Q. (Interrupting) It is true that your only experience or knowledge of caffeine is derived from your experience with people who come to the hospital to be treated?

A. No.

Q. Are they people whom you treat as a physician?

A. Also my observation of people as I meet them in

the usual walks of life.

Q. People that are drinking tea and coffee?

Q. Do you know any people that do not drink tea and coffee?

A. Yes, I do.

Q. Do you know very many people—you don't know very many people?

A. Quite a number.

Q. Most of your acquaintances do drink tea and coffee, don't they?

A. More or less, I presume they do, I am not prepared to say that.

Q. And a good many of them are in good health, so far as you know?

A. Apparently, yes.

Q. So far as you know?

A. But a great many are in very bad health or miserable state.

Q. All the people who drink tea and coffee you are acquainted with are in bad health?

A. I presume not, I am not prepared to state that.

Q. A good many people are in bad health who don't drink tea or coffee?

A. A good many.

Q. Now, of course, you don't know except in a general way about the extent the people you meet casually on the street may drink tea and coffee.

The Court: That is getting a little too far.

Mr. Sizer: I was trying to find out whether he did not have some other means of knowing.

BY MR. SIZER:

Q. Your personal use of tea and coffee, I say your knowledge is from your personal use of tea and coffee, and the effects of it, and from your experience.

A. In part, and in part from my observations and reading, from knowledge that there is a wide-spread attempt and a growing in the use of other substances to take the place of tea and coffee.

Q. What kind of substance, for instance?

A. The so-called famous hot drinks that are gotten up.

Q. Postum?

A. I believe that is one, I suppose.

Q. Chocolate and cocoa?

A. They are fair foods, yes.

Q. They also contain theobromine and caffeine?

A. I don't know.

Q. You don't know that?

A. I am told —

Q. You do not qualify, then as a chemist?

A. No, sir.

Q. You say, now, Doctor, that caffeine has no local eeffct on the stomach?

A. It has.

Q. How do you know that, Doctor?

A. Because of the symptom of irritation which is likely to arise.

Q. Because of irritation that is likely to arise. Is that from administering caffeine medicinally or taking it in the form of a beverage?

A. Taking it in the form of a beverage.

Q. Do these same symptoms follow the use of caffeine as a medicine?

A. They will.

Q. Are you prepared to say, then, Doctor, that in all cases caffeine in an irritant to the stomach?

A. No; I would not say in all cases. I would say in a very large number of cases.

Q. Do not the authorities disagree with you on that proposition?

A. I do not know.

Q. You do not know what the authorities do say on that subject?

A. I know in a general way what they say, yes.

Q. Are you familiar with H. C. Wood on Therapeutics, Its Principles and Practice?

A. Yes.

Q. That is a standard authority?

A. It is.

Q. I will read from page 339 of this book: (Reading)

> "Caffeine is an irritant and for practical purposes may be considered to have no local action except it be on the sensory nerves."

Do you agree with that?

A. I do not.

Q. Are you familiar with Cushny's work on Pharmacology and Therapeutics?

A. I am.

Q. And the action of drugs. I will read you this from page 254 of Cushny's—is that a good authority?

A. Good.

Q. (Reading)

> "The alimentary tract is not affected by caffeine, but after theobromine, discomfort and loss of appetite are sometimes complained of, probably owing to the changes in

the gastric mucous membrane."

Do you agree with that?

A. I do not.

Mr. Sizer: We would like to have the opportunity to bring some other authorities to present this witness, but we have not got them right now.

BY MR. SIZER:

Q. Do you ever administer caffeine in the form of citrate?

A. I do.

Q. Do you ever administer it in any different form?

A. Plain caffeine sometimes, sir.

Q. The citrate of caffeine might be an irritant to the stomach on account of the acid contained in it, might it not?

A. I would hardly think so. It might.

Q. So the citrate might have a different effect in that respect from pure caffeine?

A. It might. It is possible to juggle in that way about it, but it is not likely.

Q. You have a theory, have you not, Doctor, that even a moderate amount of water very often causes stomach disease?

A. I don't know of it.

Q. Did not you write an article—you have written a book, have you not?

A. I am sorry to say I have.

Q. What is the title of that book?

A. "Medical Diagnosis." It has not got anything to do with —

Q. (Interrupting) Did you ever write a book entitled: "Practical Treatment, Musser & Kellar"?

A. I wrote one chapter of that book.

Q. Did you write the chapter that dealt with the effect of water on the stomach?

A. I did not.

Q. Do you endorse what was said in that chapter?

A. We are not responsible for what is said by various others.

Q. This is a book, though, in which you were one of the co-authors, was is not?

A. Co-editors.

Q. Do you endorse the chapter in that book on the subject of the effect of water on the stomach?

Mr. Miller: I submit that is immaterial.

The Court: It seems to be.

Mr. Sizer: Your Honor, it is his book; I just want to

know what his theory is about stomach disturbance. I want to know if he believes that caffeine in the stomach disturbs it the same as water. I am just getting around to that point, and just asked him about his book in that connection.

Mr. Miller: It is not his book.

Mr. Sizer: A book he is one of the co-editors of.

The Court: He says he is not responsible for the other articles. You may ask him what he agrees with, not what anybody else has said as to the effect of the water. I do not see what the question of the water or disturbance on the stomach from water has got to do with it. I sustain the exception, on the ground of immateriality.

BY MR. SIZER:

Q. You never had any experience at all, Doctor, had you with the use of Coca Cola?

A. I never had.

Q. And your testimony as to the deleterious effects that might follow from the excessive use of caffeine is based on the use of tea and coffee and on the effect of caffeine as administered to your patients?

A. It is.

Q. You never observed any of your patients forming a caffeine habit from that, from the fact that you gave them caffeine as a medicine, did you?

A. I have not from giving caffeine as a medicine, but from students taking caffeine.

Q. You spoke a while ago—do you mean taking pure caffeine?

A. They took the pure caffeine; yes.

Q. How much of it did they take?

A. Ten to fifteen grains in a night.

Q. In a night?

A. Yes, sir.

Q. How many of them were in the habit of doing that?

A. I have not any—I do not know that it is—I can not tell you how many; but it is the custom, unfortunately, of students, as examination approaches, to whip themselves up with extra doses of caffeine.

Q. You mean it is the custom among the students in your institution there to take from ten to fifteen grains of pure caffeine a night when they are preparing for examination?

A. That happens sometimes.

Q. Does it happen as a regular or common thing?

A. Some of the students seem to think—that is, a number of them,—I cannot tell you how many, but it

4
6
5

has occurred.

Q. Are those the cases of caffeine habit that you say you treated?

A. No, not the only ones by any means.

Q. How long would they keep that up, that habit of taking ten or fifteen grains?

A. Four or five days.

Q. And then quit?

A. And then quit.

Q. They did not form any permanent habit with it, then?

A. Fortunately, they put themselves under such regime that they could not form any permanent habit.

Q. They would take for four or five days ten to twelve grains and then stop?

A. Yes.

Q. Are there any other cases of habit-forming from the use of caffeine that you have observed?

A. From the use of the effervescent citrate of caffeine in headaches by patients.

Q. How many cases of that kind have you treated?

A. I cannot give you the exact figure. Perhaps one or two a year, or perhaps one or two in three years.

Q. Those are cases where people would take it to stop headaches, and would get in the habit of taking citrate of caffeine to cure the headache?

A. Yes.

Q. Whenever they would have a headache they would take the citrate of caffeine?

A. Or whenever they have sypmtoms that suggested they were going to have a headache, to prevent the headache.

Q. They would take it then as a remedy for that particular condition?

A. And also for that state of the nervous system that would come about the time they would expect the headache which they knew caffeine would relieve.

Q. They would think if they took the dose of caffeine it would prevent the headache and relieve the consequences that followed?

A. Yes.

Q. And for that reason they would take the citrate of caffeine?

A. They would begin with a moderate amount and increase it from day to day and from week to week.

Q. How many cases of that kind do you say you have treated?

A. I cannot say how many.

Q. How did you treat it?

A. By general measures; the withdrawal of the drug, either immediately or gradually, and by putting them in such relations that they would not get headaches.

Q. And whenever the headache —

A. (Interrupting) And by the administration of tonics, food, etc.

Q. Whenever you would put them in such condition the headaches would disappear and then they would stop taking the caffeine?

A. No; the bad effects of the caffeine would disappear.

Q. What other bad effects were there from caffeine aside from the headaches?

A. Extreme irritability, nervousness, restlessness—inability to sleep.

Q. How much would these people take? What is the most any one of them ever took?

A. I don't remember. A quarter of a bottle, I think. They showed me sometimes they would take one of those bottles that are on the market, the entire bottle, in one day.

Q. What else is there in those bottles besides citrate of caffeine?

A. I am not a chemist. I do not know. Carbonated—some material which causes effervescence,—carbonic acid.

Q. Do they not have acetanilid, or some coal tar preparations?

A. No. Not in this preparation, that is another preparation. I am not referring to that.

Q. How much caffeine would be in one of those bottles?

A. Perhaps one grain to each teaspoonful of the material.

Q. And how many teaspoonfuls of the material were there in the bottle?

A. Oh, a two-once bottle, sixteen; a three-ounce bottle —of course, depending on the size of the bottle.

Q. About how much? Just give us an approximate of the amount of caffeine that would be in one of those bottles.

A. It would depend upon the size of the bottle.

Q. The one you say they have taken in a day.

A. I think they are considered a three-ounce bottle. I don't recall, though, and cannot tell you that; but a three-ounce bottle would mean about twenty to twenty-four grains.

Q. Twenty to twenty-four grains in a day, then?

A. Yes, that some would take, and others not so much.

Q. Yes, about what they would take. Now, Doctor, do you know that this is true with respect to the ordinary use of caffeine as a food, aside from its use as a drug or medicine, that one who gets accustomed to taking caffeine in a beverage, as tea or coffee, does not as a rule desire to increase the quantity that he takes daily, but is satisfied with the amount that he is ordinarily accustomed to?

A. Perhaps as a rule, but that does not necessarily follow.

Q. I did not ask you if it did not necessarily follow. Is not that the general rule?

A. Generally, yes.

Q. Generally so. If a man is in the habit of taking two or three cups of coffee a day, he generally takes that amount and no more?

A. There are many times when he will want more.

Q. I know. As a general rule that is what he does?

A. As a general rule, yes.

Q. Is it not true, also, that if a man becomes addicted to the opium habit or the cocaine habit, or the chloral habit, or any of those things, that he will continually increase the dose in order to produce the effect he desires?

A. I don't think so. I don't know.

Q. Do you mean that if a man gets addicted to the opium habit he just goes along, taking the same quantity day by day?

A. I think that satisfies him, though I do not know. I am not that much experienced.

Q. You are not an expert, then, in the taking of habit-forming drugs, are you?

A. No; I hope I am not.

Q. Is it not true that a man who becomes accustomed to the use of opium will take so much at a single dose, increasing the dose continually, that it would kill a man who was not accustomed to it?

A. Yes.

Q. That is true? And you do not say now you do not think that they continually increase that dose?

A. I presume they do. I cannot give you a definite statement about it.

Q. And would not that same rule apply with all those kindred substances, such as chloral, cacaine and alcohol, —when a man gets the alcohol habit, that he would be continually increasing the amount taken from day to day?

A. I do not think it does apply to alcohol at all?

Q. There are people who drink alcohol in moderation?

A. Yes.

Q. Just take a drink or two in the course of a day, or sometimes a drink a week. Now, there are other people who get the alcohol habit, is that not true?

A. Yes.

Q. And those people who get the alcohol habit want to keep it continually in their system and keep continually under the effect of it, and so they continue to increase the quantity from day to day, is not that true?

A. It is not. They cannot go beyond a certain limit.

Q. How is that?

A. He cannot go beyond a certain limit.

Q. What is the limit, do you think, of the amount of alcohol a man can become accustomed to, with the alcohol habit?

A. I am from the North and I cannot very well tell you. I know very well after a certain limit they become comatose, and that ends it, and they cannot take any more.

Q. Become how?

A. Unconscious; drunk.

Q. Oh, yes; but is it not true that man acquires the alcohol habit,—that a man who acquires the alcohol habit has to take more from day to day in order to experience the effect that he would get from it, that he desires to get from it?

A. Up to a certain point only.

Q. Up to what point now?

A. The point of saturation.

Q. The point at which he gets dead drunk?

A. Yes.

Q. Doctor, do you know the work by Bunge, entitled "Physiologic and Pathologic Chemistry"?

A. I know of it. I am not familiar with it all.

Q. Do you know whether that is a good authority or not?

A. I don't know. That is out of my line and I am not capable of judging it.

Q. On your cross-examination, at the time your deposition was taken, Doctor, were you not asked this question and did not you give the answer as follows:

> "Q. Doctor, you say you are acquainted with caffeine. By what method have you beccome acquainted with caffeine?
>
> "A. By using it as a drug and by observing the effects of a solution, that the solution which we know as coffee, in people."

A. I suppose I did; I don't know.

Q. (Reading:)

> "Q. Its effects as used as a drug and in a so-

lution of coffee?

"A. Yes, use as a drink or beverage, whichever you prefer to call it.

"Q. Are the effects in all three cases the same, Doctor?

"A. Depending entirely upon the amounts that are taken."

A. Yes.

Q. (Reading:)

"Q. I mean of equal amount.

"A. Yes.

"Q. And upon persons in the same condition?

"A. Yes."

A. Yes.

Q. That is all true? Did you testify in that deposition that caffeine was a poison?

A. I don't remember.

Q. Did you testify that it had poisonous tendencies?

A. I don't remember my testimony at all. You will have to read it to me.

Q. Do you remember that you testified in that deposition that salt was a poison?

A. I do not.

Q. I will read you this question: (Reading)

"Q. Your definition of a poison is anything that produces deleterious effects, and therefore salt in large quantities is a poison?

"A. Yes, sir."

A. Yes.

Q. (Reading:)

"Q. And sugar, likewise?

"A. Yes."

A. Yes.

Q. So that both salt and sugar may be poisonous in large quantities?

A. In the sense of producing deleterious effects in the organism; yes.

Q. And that is the definition you give of the word "poison,"—anything that produces a deleterious effect?

A. Yes.

Q. Doctor, are there any substances in tea or coffee that affect the stomach, or might affect the stomach, besides saffeine?

A. Well, we have the oil in coffee. It is not known —

Q. What is that oil and how is it produced?

A. I do not know. You mean how is it extracted?

Q. Yes. By what process does it develop? It develops in the roasting, does it not?

A. Yes.
Q. What is that oil?
A. That is all I can say.
Q. What is the name of it?
A. Empyreumatic oil.— I don't know.
Q. Sometimes called caffeal?
A. Yes.
Q. How does it affect the stomach?
A. I don't know.
Q. Is it not slightly stimulating?
A. I don't know.
Q. Does it not contain what is known as furfol alcohol?
A. I presume so; I don't know.
Q. What is furfol alcohol?
A. Don't ask me.
Q. Coffee also contains tannin, does it not?
A. Small amounts.
Q. And tannin is not very good for the stomach, if taken in large quantities?
A. If taken in large quantities. no.
Q. It also contains tannin, does it not?
A. Small amounts.
Q. It contains considerably more tannin than caffeine, does it not?
A. I believe so.
Q. Suppose a man drinks coffee and his stomach is subsequently irritated, or he drinks it and his stomach is subsequently irritated, you could not say, could you, whether that irritation was due to the caffeine or to the other substances in tea or coffee?
A. I judge so, from the fact that the so-called preparation that is free from caffeine does not have the irritating effect on the stomach.
Q. What preparation free from caffeine do you refer to?
A. So-called caffeine-free. I don't know as I could tell you anything more about it. Merke's Preparation.
Q. Is it not true that those substances are not entirely free from caffeine, but that the amount of caffeine in them has simply been reduced by extracting part?
A. A considerable part, a very large part; yes.
Q. About how much has been taken out of it?
A. I don't know—about,—well, I have not any reason to know what part except from what I have read and heard.
The Court: It appears to me that it is right in the discretion of the Court that when an expert witness has been cross-examined as to a scientific opinion that he has

expressed by the introduction of books giving a contrary opinion, to permit him on redirect examination to give a list of authorities. I think that is fair to the witness. Is there any objection to that on either side—without reading the books, but just to give references?

Mr. Sizer: I would have no objection.

Mr. Miller: We would have no objection. Of course, if your Honor holds to that ruling we will ask our witness who was previously examined ——

The Court: Let us settle that question.

Mr. Miller: I have no objection.

Mr. Sizer: I believe it would be subject to such qualification that if such a list is introduced the opposing counsel would have the right to produce those authorities and show exactly what they do say.

The Court: And if they did not support that fact, then you would have the right to cross-examine as to that.

Mr. Sizer: With that modification I think that would be a very fair rule.

Mr. Miller: We would have no objection to that ruling.

The Court: It may lengthen the proceedings a little, but it seems it is fair to the witness. If you have any such case as that and desire to recall anybody, you may.

Mr. Miller: That applies to Doctor Kebler, as stated this morning.

Mr. Sizer: I think it would be fair for them to submit a list of those authorities, so we will be prepared to cross-examine about them.

The Court: That would expedite matters.

Mr. Miller: We will do that, but as he will be here during the trial, we will not be able to do it to-day, but will do it at least a day in advance of the reintroduction of Doctor Kebler.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. Referring to those students that you say were fortunately placed in a condition or relation in which they would not continue this caffeine habit, state what that condition or relation surrounding them was, Doctor.

A. You mean at the time they took the drug?

Q. At the time when you say they were fortunately placed in such condition that they would not continue the habit.

A. Would not?

Q. Yes; I say, what were they?

A. First, they were relieved of the anxieties of the examination, by either passing or failing. The ordeal was over. Some of them were made to take other remedies. They all had counter-acted the bad effects of the caffeine and some were put at rest, absolutely put in bed and kept there for a time until they got over their nervousness, and the states that had arisen on account of the use of the drug.

Q. That is the drug caffeine. State whether or not those were marked cases of caffeine poisoning that came under your observation.

A. They were very marked cases.

Q. Now, as to this percentage of caffeal or empyreumatic oil that is taken out of coffee in the roasting, you started to say, I believe, that you could only give a statement from your reading of literature on the subject. What is that, approximately?

A. What is the reading?

Q. Yes. I mean, what is the percentage that is taken away in the process of decaffeinizing coffee?

A. I understood about 75 or 80 per cent.

Q. About 75 or 80 per cent.?

A. Of coffee.

Mr. Sizer: He has expressly said he does not know anything about that.

Mr. Miller: Mr. Sizer called that, that he knew there was such a process from reading literature, and knew a percentage of it was relieved and discharged. Now, then, when the witness started to answer as to that percentage ——

Mr. Sizer: I didn't ask him that. I asked him how he could tell whether it was caffeine or these other substances in the coffee that produced the injurious results, and he answered that he had not observed the effect in cases of decaffeinized coffee, and I asked him what part of it was taken out and he said he did not know.

Mr. Miller: Of his own personal knowledge. I submit if there is literature on that subject that he has read, and it is also part of his patient's general history in that connection, that is part of his knowledge.

The Court: That is not a matter of expert opinion.

Mr. Miller: And the patient's statements and the literature on that subject become a matter of fact, and an exception to the rule of hearsay evidence, I understand.

The Court: The exception is sustained.

Mr. Miller: We note an exception.

BY MR. MILLER:

Q. With respect to the quantity taken, and as to which an extract was read from your former deposition, I will ask you whether or not the statement there read, that the toxicity or the toxic effect of any drug, depends on the quantity taken, together with the system of the individual and the condition of the individual at the time.

A. Yes, that is generally understood.

Q. That is true of any poison?

A. Yes, sir.

Q. Did you answer?

A. Yes—yes, sir.

Q. In the proportion that was given in the mixture, a copy of the analysis of which was furnished you, state whether or not the quantity as there given will probably produce, administered to the average individual, an effect —that is, produce a symptom.

A. It would.

Q. And if the quantity—that quantity, produces a symptom, what does that speak or indicate as respects the poisonous character of the drug?

A. That any symptom that is produced by the drug is deleterious.

RECROSS-EXAMINATION,

BY MR. SIZER:

Q. You say the quantity of caffeine as shown by that analysis would produce a symptom. What kind of a symptom would that ordinarily produce in a man of normal health?

A. Probably produce nervousness.

Q. Do you mean to say, Doctor, that a glass of beverage with that quantity of caffeine in it would produce probable nervousness in a man?

A. Not one dose, but the continued use of it.

Q. I was asking now,—you were asked about the quantity of caffeine contained in that mixture. Would a dose, a glass of a mixture containing that proportion of caffeine, produce any symptom whatever?

A. Perhaps not an appreciable symptom. It would produce something, undoubtedly. It would have an effect, undoubtedly.

Q. How do you know it would have an effect, if you did not see it?

A. I would not know it, but they would not take it if it did not have an effect. That is certain.

Q. Suppose a man goes and takes a glass of lemonade;

does that produce a symptom?

A. No, it does not produce a symptom.

Q. It produces an effect?

A. Yes, sir; it produces an effect.

Q. And he takes it because it feels good in his system; is that the reason, it refreshes him?

A. Perhaps so.

Q. That is the kind of symptom you say might be produced by taking a single glass of this mixture?

A. Yes, but it might produce other symptoms, too.

Q. Suppose a man goes and takes a glass of chocolate ice cream, would that produce a symptom?

A. In some persons it would, undoubtedly.

Q. As a general rule, would it?

A. Not as a general rule, no.

Q. It would not be any more apt to produce a symptom than this mixture that you are talking about, would it?

Mr. Miller: I object to the comparative effect. I submit that is not competent.

The Court: The exception is sustained.

BY MR. SIZER:

Q. Do you know what the quantity of caffeine is in a cup of coffee?

A. From one-half to two grains, I believe.

Q. It runs sometimes as high as two and a half to three grains, does it?

A. I believe so. It depends very much on the character of the decoction.

Q. It varies from about one-half a grain to three grains in a cup of coffee?

A. Yes.

Q. And a cup of coffee ordinarily contains about five ounces, does it not?

A. Yes.

Q. Now, a glass of Coca-Cola contains about one and twenty one-hundredths grains, does it not, of caffeine-

A. I believe so.

Q. And that is put in a mixture of about seven to eight ounces, is it not?

A. I don't know—six ounces.

Q. An ordinary soda water glass contains seven or eight ounces, does it not?

A. I suppose so.

Q. Therefore the caffeine in coffee is in the first place in a larger quantity than you would get it in a glass of Coca-Cola; that would be true?

A. Yes.

Q. And in the second place it is more diluted in Coca-

Cola than it would be in coffee, is it not?

A. Yes.

Q. You speak now of caffeine poisoning, the caffeine poisoning of these students of yours. There did not any of them die, did they?

A. They did not.

Q. They all recovered in a few days as soon as they got over the strain they had been undergoing in connection with this examination and the effect of the excessive doses of caffeine which they had taken on account of that strain?

A. Yes.

Q. The two things combined, the nervous strain incident to the examination and the result of the excessive doses of caffeine combined, got them into bad physical condition?

A. Yes. There was a difference in that class from the class that did not take caffeine.

Q. When they took ten or twelve grains of caffeine in a night that would produce serious results?

A. Yes.

Q. And that, together with the nervous strain they were undergoing incident to the examinations, put them in bad physical condition?

A. Yes.

Q. And all you did was just to take them out and give them a little proper medical treatment and they soon got all right again?

A. That is what I stated.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. In answering that one glass of Coca-Cola contains, according to your understanding, only one and twenty one-hundredths grains, that, if I understand you, is on the assumption it contains only one ounce of the mixture you have given there?

A. Yes.

Q. In the analysis?

A. Yes.

Q. If the proportion of such mixture is increased, the quantity of caffeine would be increased?

A. Yes. One grain to the ounce, six grains to the glass.

RECROSS EXAMINATION.

BY MR. SIZER:

Q. Wait a minute. What was that you said about six

grains to the glass?

A. One grain of caffeine to each ounce of Coca-Cola.

Q. You do not understand that Coca-Cola syrup is taken straight, do you, Doctor?

A. I don't know how Coca-Cola is taken.

Q. You don't know that they put about an ounce of Coca-Cola syrup in a glass and then pour in about five or six or seven ounces of carbonated water?

A. I did not know.

Q. You did not know about that?

A. No, I never saw it taken.

Q. You stated it would be six ounces.

A. I beg your pardon then.

Q. When you stated it would be six ounces to the glass, you were going on the assumption ——

A. (*Interrupting*) The pure stuff.

Q. That the glass was full of Coca-Cola syrup?

A. Yes.

Mr. Miller: If it were diluted with water, the same proportion would exist as is shown there in the proportion of the quantity of the mixture put in the glass?

The Witness: Yes.

DR. O. T. OSBORNE,

of lawful age, was produced as a witness by and on behalf of the Government, and being first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. What is your profession?

A. Physician and teacher, medical teacher.

Q. Connected with what institution?

A. Yale Medical School.

Q. How long have you been connected with the Yale Medical School?

A. Since 1888.

Q. What professional connection have you sustained to the Yale Medical School?

A. At first, assistant; then instructor—clinical assistant and then instructor of materia medica and pharmacology. Then as assistant professor, since 1892 professor of materia medica and therapeutics, and for the last five years also of clinical medicine. In other words, teachings of drugs, the action of drugs, the treatment, etc., and caring for patients.

Q. In addition to your teaching and instruction, state

whether or not you have been a practitioner of medicine.

A. The entire time since I finished studying.

Q. How many students are in your institution, Doctor? That is, the medical department, annually, perhaps.

A. It used to average 150, and now since our restrictions we have about 80 or 90.

Q. State if you are connected with the American Medical Association, and if so, in what capacity.

A. I am a member. I am ex-chairman of the section of pharmacology and therapeutics, and I edit the therapeutic department of the Journal of the American Medical Association. I am on the council of pharmacy and chemistry of the American Medical Association, and also on the sub-committee of the council of education.

Q. State whether or not you are acquainted with the substance known as caffeine.

A. I am.

Q. What substance is that, Doctor? What is it, a food, drug or what?

A. It is a drug.

Q. State whether or not it is poisonous in its tendency.

A. It is.

Q. Now, assuming that a mixture be prepared such as that which you have as furnished by Doctor Fuller and which I shall ask you to file as Exhibit No. 1 to your deposition and have the stenographer copy the formula into the record,—can that be served either alone, that is, in the form it is there given or diluted with six or seven ounces of carbonated water—state what would probably be the effect on the consumer, assuming that the consumption was by children, young people and people of robust health, all taken together.

A. The principal action would be the action of caffeine. The secondary action might be of sugar, its effect on the stomach.

Q. What would be the effect of the caffeine as there contained and in the quantity there contained?

A. It would be the action of a medicinal dose as given by the United States Pharmacopoeia.

A. The medicinal dose of the Pharmacopoeia is one grain, and this is more than one grain.

The Court: Is this the same as has already been filed by the preceeding witness?

Mr. Miller: Yes, sir; that is the same one. I only have one copy.

The Court: Let this be filed as one exhibit by one witness, without it being copied each time.

BY MR. MILLER:

Q. Have you any connection with the United States Pharmacopoeia ——

A. I am a member of it. I was chairman of the committee on conventions, pharmacopoeial conventions,; third vice- president of the pharmacopoeial conventions. I am a member of the Revision Committee and a member of the sub-committee on Scope of the Pharamacopoeia.

Q. What do you mean by the Committee on Revision, Doctor?

A. Once in ten years the Pharmacopoeia is revised, to be up-to-date and to be improved by new scientific methods. It is the book that has the method of filling prescriptions written by physicians, by the druggists, of standard drugs and preparations.

Q. And what is meant by a dose of anything, as given in that Pharmacopoeia?

A. That means the average dose which should produce symptoms for an adult.

Q. For an adult?

A. Yes.

Q. In what proportion should that dose be administered to a child or person of immature years?

A. In my own book I formulate this rule for dosage, which is nearly correct for everything except morphine,— in other words, for the age, half the dose; that is, at ten years old, it would he half a grain. A quarter of the age, a quarter of the dose. Five years old would be a quarter of a grain of caffeine.

Q. You say that would produce symptoms in a person of robust health, one grain?

A. That is, it will produce symptoms.

Q. On the assumption that that dosage be taken, either as a syrup or in connection with this mixture that I have indicated, carbonated water—state what would be the noticeable symptoms, either with a child or adult person.

A. In a normal adult the symptoms from one grain might not be noticeable.

Q. Might it be noticeable?

A. It might, depending on his condition or his susceptibility to this kind of stimulation.

Q. Well, now then, as to the other classes of persons after you leave the normal individual.

A. You would get with this dose a more rapidly acting heart; with a lower dose, a slower heart. The blood pressure with this dose would probably not be changed. The mental condition would be stimulated. He would be, if he were susceptible, he would become sleepless if this

dose were taken in the evening. If susceptible, he would pass more urine. If very susceptible, he would have trembling, especially noticeable in the hands. He might become irritable and show signs of what we term nervousness.

Q. What is the effect on human health of those conditions which you have—I mean, those results, which you have described?

A. May I have the question again?

Q. Yes. What is the effect on human health of those results which you have described as obtaining from caffeine?

A. It has been considered harmless, but with the medical men of to-day we consider it serious.

Q. And by serious, what do you mean,—harmless or otherwise?

A. We mean harmless—we mean *harmful.*

Q. Now, leaving the adult and going to the nervous person or the child, state whether or not the conditions you have described would be more or less marked.

A. Much more marked.

Q. What would be the result as respects health in proportion to that of the robust person?

A. The child's digestion would be impaired. His nervous excitability would be increased, and ultimately he would be—his nutrition and growth would be impaired, and he might become and often does become a neurasthenic, and his mentality is interfered with.

Q. Might or not a single dose of the mixture as prepared by this—as shown on this formula, produce marked deleterious effects in a child or nervous person?

A. It certainly will. I have seen it. Not in Coca Cola but from other forms of caffeine.

Q. Is there any neutralizing substance or ingredient in the formula shown you that would prevent the following the harmful or deleterious effects which you have described?

A. There is none.

Q. What do you mean by "neurasthenic?" You have testified as to neurasthenics.

A. A person who is unable to do his ordinary work, who has a very irregular appetite or none, who is sleepless, restless, irritable, and soon may become enemic; low blood pressure; sometimes rapid heart—a generally miserable condition.

Q. Taking one dose of this mixture, either in the form shown on the analysis before you or in connection with six or seven ounces of carbonated water, in the evening—

that is, from six o'clock on until ten, what would probably be the effect on the consumer as respects sleep?

A. The normal sleep of an adult, a normal individual?

Q. Yes, sir.

A. That would depend on the individual. He might not notice any effects, but a large number of people and a growing number of others would be sleepless, or at least not be able to get sleep until several hours after going to bed.

Q. Would it or not interefer with normal sleep? I mean to say, with the sleep that they would normally get but for the taking of this stimulant.

A. That would depend upon the individual, with the one dose.

Q. Now, if sleep be interferred with as you have described, what would be its effect on human health?

A. It would be greatly detrimental.

Q. Suppose that more than one dose—say from two to three or four doses, be taken during the day; would or not the effects of the caffeine therein be cumulative and increased?

A. It will be cumulative.

Q. What would be the resultant effect, at night?

A. He would be more and more sleepless.

Q. How would the dosage of caffeine as administered to an adult compare in effect with, a woman, for instance? You have described an adult. Now, how would that compare in effect with the same dosage given to a woman?

A. She is more mentally excitable than are men, and it would therefore have more effect.

Q. And how would the result compare in effect with a person who is on the outside, engaged in outdoor work, farming occupations and things like that, and those who are engaged in shops, factories and stores, and who are confined to inside work?

A. It would have more effect on the one who is confined.

Q. State whether or not the deleterious results would be greater in that latter class.

A. They would be greater in that class.

Q. I will get you to state whether or not you have had occasion to treat patients who were suffereing with caffeine poisoning.

A. I have.

Q. Many or few?

A. Quite a few students, and quite a goodly number of patients. In fact, there is never a week goes by without treating several who have the coffee and tea habit and

have to have it stopped on account of symptoms.

Q. State whether or not caffeine is a poisonous drug?

A. It is.

Q. Is it or not a habit-forming drug?

A. It is, in my opinion.

CROSS EXAMINATION,

BY MR. SIZER:

Q. Is it your opinion, doctor, as an expert, that people ought not to be permitted to drink tea or coffee?

A. I think that children and young people up to fifteen years of age should not be allowed to drink tea and coffee.

Q. That is, you would advise the parents of young children not to allow those children to drink tea and coffee?

A. I do that.

Q. And when they reach beyond the age of ten or twelve or fifteen years, then you would leave it to the individual to say whether or not he would be injured by the consumption of tea and coffee?

Mr. Miller: I object to what he might do as a matter of Governmental regulation. That is a matter of individual opinion. If he asks him from individual standpoint I have no objection.

The Court: The exception is well taken.

BY MR. SIZER:

Q. I will ask you then if it is not true from the standpoint of an expert witness that the extent to which an individual who has reached the years of discretion should use tea and coffee should generally be left to his own discretion.

A. Generally is a very broad term. I would not generally leave it; I would see what it did to them, to that young growing individual, or I would see what it did to the normal individual. Generally normal individuals, otherwise normal, come to us and we discover that it is tea and coffee that is causing them to be sleepless, with those results.

Q. If a patient comes to you for treatment and you discover from his symptoms that he is taking too much tea and coffee, then you would advise him, and when you advised his in a majority of cases he stops it, does he not?

A. Yes.

Q. But in a great many cases patients come to you who drink tea and coffee whom you do not advise to stop tea

and coffee, is that not true?

A. Sometimes that is true of tobacco.

Q. I did not ask you about tobacco. Confine youself, please, to the question. Is that not true, Doctor?

A. Yes.

Q. Do you use coffee yourself?

A. Yes.

Q. How much?

A. One cup a day.

Q. Any more than that?

A. Rarely.

Q. How long have you been using it?

A. Always.

Q. You have always used it at the rate of one cup per day?

A. Since I was a child. I do not know the age.

Q. You have experienced no uncontrollable desire to increase the quantity from time to time?

A. I have recognized the stimulation of it and had to stop it, at nights.

Q. You mean that the cup of coffee that you take for breakfast in the morning stimulates you so much at night that you have to stop it?

A. No, I didn't say that.

Q. You mean then you used to take it at night?

A. Used to take it at dinner.

Q. How much did you take at that time, one cup?

A. A demi-tasse, a small cup.

Q. Did you ever drink any more than a cup of coffee for breakfast and a cup at night?

A. Sometimes two cups in the morning, small cups.

Q. Sometimes one large one?

A. Sometimes one large one.

Q. And you have done that for about how many years?

A. I don't remember the age at which I began.

Q. What is your age now?

A. Forty-eight.

Q. Did you begin pretty young?

A. I don't know—no.

Q. You kept it up at that rate for a number of years, say twenty-odd years?

A. Easily.

Q. Do you drink tea?

A. Yes.

Q. How much tea do you drink?

A. One cup or less a day.

Q. What time of day do you drink it?

A. Noon.

Q. Do you ever drink any in the afternoon,—afternoon teas?

A. Very rarely.

Q. You do sometimes?

A. I sometimes have to.

Q. Do you drink any chocolate?

A. Occasionally.

Q. Chocolate has caffeine in it?

A. Not to be noticed. I do not believe for one minute that the caffeine in a cup of ordinary chocolate has any caffeine action whatsoever.

Q. Do you know how much caffeine there is in the ordinary cup of chocolate?

A. Never more than a quarter of one per cent at the most, possibly. I do not think it has ordinarily as much as that. Bearly a trace.

A. About a quarter of one per cent?

A. Not as much as that, ordinarily.

Q. You would call that, now, a small proportion, would you not, in any mixture, a quarter of one per cent.?

A. I call that the outside limit in chocolate.

Q. How is that?

A. I call that the very outside limit of possibility in chocolate.

Q. I say you would call that a very small percentage of caffeine in any mixture.

A. If I thought chocolate always had that in it, I would never allow children to have it.

Q. Just answer the question. You said it had a very small proportion in it, didn't you?

A. May I change that to a trace?

Q. A trace?

A. A trace.

Q. And that trace, you say, is about one-quarter of one per cent?

A. I do not think that chocolate, as made, has anywheres near a quarter of one per cent.

Q. Did you not say a while ago that you thought it had about a quarter of one per cent?

A. No; I said that would be the outside limit that it could have — that it could have.

Q. Is it not true that the authorities state that some forms of chocolate, for instance the cocoa infusions contain as high as seventy-three hundredths of one per cent, or about three quarters of one per cent?

A. Chemically, undoubtedly that is true. As a food product, when the child receives it, it is not true.

Q. Do you feed it to children a great deal up in that country?

A. Chocolate?

Q. Yes.

A. Certainly.

Q. In the form of candy?

A. Not much candy, if we can help it.

Q. Ice cream, or hot chocolate; which particular form?

A. Probably hot chocolate, as a food.

Q. You feed it to children up there as a common thing, do you?

A. I think too much.

Mr. Miller: Wait a moment. Of course, I do not object to that, but I do object to further inquiry on the subject of chocolate.

The Court: I sustain the exception.

Mr. Sizer: May it please your Honor, we have shown, I think, that chocolate has, and he says it has, some caffeine in it.

The Court: He says a mere trace.

Mr. Sizer: One other witness says it might run as high as one-fourth of one per cent.

The Court: You can develop that later. As long as the witness says "A mere trace," I am going to limit it.

Mr. Sizer: I call you Honor's attention to the fact that this witness says it might have as much as one-quarter of one per cent. This Coca Cola syrup has less than that, only one and twenty-hundredths of one per cent. That is the extreme analysis. Their analysis shows only sixteen per cent. of one-hundredths.

The Court: The exception is sustained. Whenever you gentlemen are prepared to show the actual constiuents of chocolate, I will rule on the question.

The Witness: May I make an explanation?

The Court: You may make any statement you desire.

The Witness: I believe that the oil in chocolate would prevent any caffeine action whatsoever from a cup of chocolate.

BY MR. SIZER:

Q. Now, Doctor, there is another alkaloid in chocolate besides caffeine?

A. Yes.

Q. That is theobromine?

A. Theobromine.

Q. Is it not almost identical in its action with caffeine?

A. No.

Q. Wherein is the difference?

A. It has no stimulation effect on the nervous system whatever.

Q. Theobromine has not?

A. Theobromine has not, in my opinion.

Q. On what do you base that opinion?

A. I base that opinion on the recognized authorities with which I am familiar.

Q. Can you state any authority that says theobromine has no stimulating effect on the nervous system?

A. I am not aware of any authority that says it is a stimulant to the nervous system.

Q. That is not what I asked you. Are you of any authority that says it has no stimulating effect?

A. I can tell you what I think. I have not seen his books lately.

Q. I did not ask you that. I just asked you to refer to the authorities.

A. I think Cushny, Brunton, Hare, Wood, Potter, Butler, and Sollmon. As my memory serves me, I think they all say theobromine does not act upon the nervous system as does caffeine.

Q. What is the difference, chemically, between theobromine and caffeine?

A. One is bimethylxanthine and the other is trimethlxanthine, caffeine being the latter.

Q. What is the difference chemically, the chemical constituents?

A. I cannot answer that. The difference is mostly in the hydrogen milecules. Your formulas are right there in Cushny—the hydrogen atoms.

Q. You never had any experience with the use of Coca Cola at all?

A. No.

Q. You only know of the effect from its use in tea and coffee, and as administered medicinally?

A. Yes.

Q. You do administer is medicinally for certain diseases?

A. I do.

Q. Now, you say that the dose prescribed by the Pharmacopœia is one grain, Doctor?

A. Yes, if my memory is correct.

Q. Is it not expressly stated now in the preface to the Pharmacopœia in treating of and discussing the question of these approximiate doses, that "Neither this Convention nor the Committee of Revision, created by it, intend to have these doses regarded as obligatory upon the physician, or as forbidding him to exceed them whenever, in his

judgment this seems advisable," and further, "It must be recognized that the dose of a drug or preparation can never be regarded as a fixed quantity. The age and condition of a patient must always modifq what is known as an average dose, but the doses which has been inserted, are intended to furnish a guide to those who are inexperienced in prescribing, or who desire to use a drug, or preparation with which they are unfamiliar."

That is a correct quotation, now, from the preface of the Pharmacopœia.

A. Yes, but that average dose is decided by a scientific body of men employed and requested to furnish just that testimony.

Q. And the fact is, that is what they fix as the minimum dose.

A. No, that is the average dose.

Q. Do you not exceed that minimum dose?

A. That is not the minimum dose; that is the average dose.

Q. Do you ever exceed that average dose, then?

A. Yes.

Q. Do you ever go below it?

A. Yes.

Q. In what cases?

A. In children and in susceptible individuals, in individuals who are easily impressed by it.

Q. That is when you are administering caffeine as a medicine, is it not?

A. Yes.

Q. And the Pharmacopœia, of course, only deals with caffeine administered as a medicine. As a matter of fact, caffeine is taken much more in food, or in food products, than it is in drugs, is it not?

A. With beverages; not as a food.

Q. Well, in beverages?

A. Yes.

Q. And these beverages are classed as foods under this law, of course, then they would be taken as foods.

The Court: Until that fact is disputed, you need not introduce any further evidence to show there is more caffeine consumed in tea and coffee than in anything else.

BY MR. SIZER:

Q. You say, is a drug. That depends on whether it is taken as a drug or not, does it not?

A. Caffeine always acts as a drug, everyway it is taken.

Q. What do you mean by a drug?

A. A drug that will produce symptoms.

Q. What do you mean by smptoms?

A. Or will produce activities in the human body.

Q. Will not anything that you take have some kind of activity—produce some kind of effect in the human body?

A. Yes, sir.

Q. In substance, then, anything is a drug?

A. Not in that sense. They may be nutriments.

Q. Anything, you say that produces an effect in the body is a drug?

A. To have abnormal activity, perhaps I should have put it.

Q. What do you mean by abnormal activity?

A. Activity that is not needed by the body.

Q. Then, if you take too much of anything and produce an effect that is not needed, that is a drug; is that right?

A. Please read that.

(Thereupon, the stenographer read the pending question.)

A. No; not necessarily.

Q. Under your definition it is, is it not?

A. My definition then was imperfect.

Q. You definition was not the correct one, then? Then what is the correct definition of a drug? Is not this it, Doctor: "A drug is a substance taken to produce a medicinal effect?" Is not that a correct definition of it?

A. That definition, the Revision Committee is still working on, as to what a drug really is. My opinion of a drug is that it is not a drug because it is used. A drug is something that must do something to the system.

Q. Then, anything which does something to the system is a drug?

A. —and is used medicinally.

The Court: What is the materiality of this, Mr. Sizer?

Mr. Sizer: He just talked about caffeine as a drug. I want to know what he means by that statement. He is an expert.

The Court: Then just ask him that, without going into the definition.

BY MR. SIZER:

Q. Why do you say, then, that caffeine is a drug?

The Court: What do you mean when you say it is a drug?

Mr. Sizer: Yes.

The Witness: Because it is listed in the Pharmacopœia as a drug; because every book on Materica Medica states that it is a drug; because it is used therapeutically as a

drug; because it is used in the treatment of diseases as a drug.

BY MR. SIZER:

Q. Everything then, which is named in the Pharmacopœia is a drug, is it?

A. That is a book of drugs.

(Thereupon, at twelve o'clock, noon, a recess was taken until twelve-twenty o'clock P. M. the same day.)

AFTER RECESS.

The court met pursuant to recess at 12:20 o'clock p. m.

O. T. OSBORNE,

resumed the stand for cross examination:

CROSS EXAMINATION CONTINUED

BY MR. SIZER:

Q. You were proceeding to state doctor why it was you say caffeine was a drug. I believe you stated it was because it was in the pharmacopœia?

Mr. Miller: Not altogether that.

The Witness: You want me to repeat that?

BY MR. SIZER:

Q. Did you say that?

A. That was not the whole of my answer; because I said it was in the text books, because listed as a drug and described as a drug in all text books on materia medica and pharmacology and because it is used for medical purposes.

Q. Then a thing that is used for medical purposes would be a drug?

A. Caffeine always is a drug.

Q. Now, isn't it true that a drug is simply a substance used for medicinal purposes?

A. Yes sir, that is true in the ordinary acceptation of the term.

Q. For instance water is down in the pharmacopea as a drug?

A. It is unfortunately.

Q. And salt?

A. It is.

Q. Ginger?

A. Yes.

Q. Soda?

A. Yes.

The Court: That is enough.

BY MR. SIZER:

Q. On the other hand they are all used for other purposes than drugs?

A. You are stating the pharmacepea and in materia medicas —

Q. (Interrupting) Well now what materia medica —

The Court (Interrupting) I don't think the question of the accurate definition of a drug or food is material except in order to get at what this witness means by the word "drug."

Mr. Sizer: What I am trying to get at is not properly termed a drug except when used as a drug?

The Court: Just get at what he himself calls it, why he calls it a drug.

BY MR. MILLER:

Q. Are you familiar with the work by Tyrold Sollman, entitled a text book of Pharamacology, including Therapeutics, Materia Medica, etc?

A. I don't know the book—I am not familiar with the last edition.

Q. It is recognized as a standard authority?

A. A good authority.

Q. A good authority you say?

A. Yes, sir.

Q. I will read you now from the book (page 171) of Sollman's work and ask you if you agree with him (reading):

> "Coffee and tea are used principally as beverages, and to relieve psychical and physical fatigue. They may in some cases be substituted for caffeine in therapeutics, although their effects are not quite identical with those of the alkaloid. The differences are due to the other constituents."

And now further:

> "The differences between the caffeine beverages and the alkaloid consists therefore in a greater psychic and respiratory stimulation, by the oil; a greater diuretic action from the water; a comparatively lesser action on heart and muscles, a tendency to derange digestion, by the caffeol of tea tannin; and a laxative action with coffee."

A. Well, it is rather too long to carry the whole of that —I don't know whether I can say that I agree with the whole of that.

Q. I hand you the book and will let you read it your-

self doctor. It is this clause (indicating on book) down here, the one that I am after?

A. (After examining book) I agree with that.

Q. You agree with that?

A. Yes, sir.

Mr. Hiller: What page was that?

The Witness: At page 171.

BY MR. SIZER:

Q. Now, does not Mr. Sollman further say that the toxicology of caffeine is unimportant. Do you agree with that statement?

A. I do not.

Q. Do you agree with this further statement, that caffeine in moderate doses does not seem to be noxious with habitual use?

A. I agree with that when—no, I do not agree with it.

Q. You think that caffeine in moderate doses does become noxious with habitual use?

A. I think caffeine even in moderate doses does more or less harm to all except a few individuals.

Q. For instance, the taking of one cup of coffee and tea over a period of twenty odd years is known to become noxious?

A. I think tolerance is often lost to it.

Q. And, suppose now over that period of years you took one cup of coffee and tea or a cup of tea, you think the caffeine in tea and coffee combined taken over that period of years tends to become noxious with use?

Mr. Miller: I can't see the relevancy of that. Our object is not to object to anything that will convict us of error but I do submit that is wholly foreign to this controversy.

The Court: I think he is trying to show the effects of the daily use of caffeine in coffee and tea, and I think that is competent.

The Witness: Sollmon says other things in that same text.

BY MR. SIZER:

Q. But I am asking you about that particular statement, and about that particular edition—now you are of the opinion that the moderate use of caffeine as by the taking of one cup of coffee and one cup of tea per day over a series of twenty odd years individuals so using it become noxious with that kind of use?

A. I think it certainlly does.

Q. That is your personal experience with it, is it?

A. My experience in observation and professionally, clinically.

Q. How about your experience on yourself?

A. I find I am better off without the use of tea and coffee.

Q. But you have been drinking it in that same quantity for a number of years, twenty odd years?

A. That might be my only bad habit.

Q. You also use tobacco?

A. Not now.

Q. Is it true doctor that the effect of caffeine is not prolonged and is not followed by depression?

A. The action of caffeine is followed by depression.

Q. In all cases?

A. I don't think anyone can positively answer that.

Q. Now then referring again to the authority of Sollmon he says that the effect of caffeine is never prolonged but is not followed by depression. Are you prepared to dispute or disagree with that?

Mr. Miller: I object to that. He says he says so and so —I ask to have the text book read.

The Witness: Dr. Sollmon does not see patients.

BY MR. SIZER:

Q. Do you agree or disagree with that statement?

A. I disagree with that statement.

Mr. Miller: I object to until he has shown he has stated it.

The Court: Then the answer is excluded.

BY MR. SIZER:

Q. You stated that caffeine is a poison?

A. Yes, sir.

Q. What do you mean by poison in that sense? Why do you say it is a poison?

A. Because certain doses of it given to animals kill animals and cause poisonous symptoms in human beings, and perhaps kill human beings.

Q. Did you ever know of a human being being killed by any amount of caffeine?

A. I do not personally.

Q. You say in excessive doses. It is only poisonous in excessive doses, is that correct?

A. I don't know as I used the word excessive.

Q. Is that true or not?

A. Please let me have that —

Q. Read him the question, Mr. Hacker. (Question read to witness.)

A. Is what true or not?
Q. That is is poisonous in excessive doses?
A. It is poisonous even in large doses.
Q. What do you call a large dose?
A. Five grains I would say cause symptoms of poisoning I have seen symptoms from even one grain, from the action of it.
Q. In what kind of a case did you see symptoms from one grain of caffeine, caffeine straight, caffeine administered as caffeine?
A. As caffeine.
Q. Without being administered in any beverage?
A. Yes, sir.
Q. Was that an unusual sort of case?
A. An unusual sort of action of it.
Q. And it was a very unusual case?
A. To note poisoning symptoms from one grain.
Q. What kind were those poisonious symptoms?
A. Sleeplessness and irritability of the heart, great excitement and nervousness.
Q. Is sleeplessness a poisonous symptom?
A. It may be a symptom of poisoning.
Q. And it may not be a symptom of poisoning, may it not?
A. Sure.
Q. What was the trouble with the patient that you gave that one grain to?
A. Slightly disturbed heart action.
Q. What was the age of the patient?
A. A young woman, I forget the exact age.
Q. With a disturbed heart action?
A. Yes, sir.
Q. And she came to you to be treated as a patient?
A. Yes, sir.
Q. What was the matter with the heart action?
A. There was a valvular murmur, a slight decreased urination, amount of urine was decreased.
Q. Now, doctor, most any substance is poisonous if taken in a large quantity or quantities?
A. I don't think we could call water a poison.
Q. You could eat too much meat and get deleterious results from it, could you?
A. Yes, you could.
Q. And you might under certain conditions eat a tomato and get a deleterious result from it?
A. Yes, you could have something wrong in it.
Q. Suppose it is a good tomato, and you happen to have something wrong with you, you could get a delterer-

ious result from it?

A. But that could not be laid to the good tomato.

Q. The deleterious result would be due to the condition of the person taking it.

A. And not to the tomato.

Q. And not to the tomato?

A. Under those circumstances.

Q. So that it is true that any substance you take into the body if taken in excess, in too large quantities, will result deleteriously?

A. Yes, sir; but we note idiosyncrasies against certain drugs. A normal dose of a certain drug may produce abnormal symptoms.

Q. Well, doctor, there is a distinction between deleterious substance and deleterious results arising from the improper use of proper substances?

A. Yes, that is true.

Q. Doctor, you say that caffeine is habit forming substance—do you mean that the moderate use of caffeine in beverages tends to form habit in any way allied to opium, morphine, cocaine habit?

A. It is a habit forming drug but not as intense and serious as those more serious acting drugs.

Q. It does not, as generally used, increase the desire for additional quantities of the substance?

A. Not as these more vicious drugs.

Q. People acquire the habit of doing anything they are accustomed to do?

A. They become habitual; not necessarily habit.

Q. Become habitual, but not a habit?

A. Yes, sir.

Q. Then it may become habitual with a man to eat certain things at certain times?

A. Yes, sir.

Q. You say you would not call that a habit?

A. No.

Q. It might become a habit with a man to drink a cup of coffee and tea?

A. I will call that a habit, yes sir, because he cannot substitute anything else for it except caffeine or some other caffeine stimulant or something in its place.

Q. Now if he becomes accustomed to using certain things—say eggs for breakfast, he would rather have eggs than anything else?

A. He might mentally.

Q. And that would become a habit to that extent?

A. He could satisfy that with any other good.

Q. And a thing may become habitual with a man with-

out his forming a habit?

A. Yes, sir.

Q. Is it true that the term habit-forming as technically used is applied to these drugs, such as alcohol, morphine, opium and these other substances I have asked you about which in the first place create a very strong desire, and in the second place substance has to be taken in continually increasing quantities?

A. That is not necessarily true.

Mr. Miller: He has asked him about how it is technically used—I didn't ask the witness to state the habit-forming technically, but asked the witness whether caffeine was habit forming.

The Court: I think the only scope of the inquiry is to find out what this witness says he means by habit forming. To that extent it is competent and beyond that it is not.

BY MR. SIZER:

Q. Now, I want to read you a list and ask you if this does not include everything that is generally known and termed to be habit-forming drugs or substances (reading) alcohol, morphine, opium, cocaine, heroin, alpha or beta eucaine, cholorform, cannabis Indica, chloral hydrate, or acetanelid, or any derivative or preparation of any such substances contained therein?

A. That does not include them all.

Q. What others are there not named in that list that are generally known as habit forming drugs?

A. Nicotine, and I would add, caffeine.

Q. But nicotine is a substance that is not taken as food?

A. No sir.

Q. Nicotine is the alkaloid found in tobacco?

A. I say tobacco—change that to tobacco.

Q. And in addition to that you say caffeine.

A. Yes sir.

Q. Now, Doctor, do you know of any authority that sustains you in the proposition that caffeine is a habit-forming substance or drug?

A. I cannot give you the names of any materia medica that states that it is a habit forming drug at this moment but the literature will show and name a great many medical writers who have observed nervous patients and persons generally who care for patients that coffee and tea, and the only active principal of that is caffeine, is habit-forming. Personally I do not believe acetanilid a habit-forming drug—I believe it is the caffeine in the headache

powder that makes people take repeated doses of them.

Q. A great many headache mixtures that do not contain any caffeine though?

A. A large number do, and I think they are the most popular.

Q. But the question is a great many of them do not?

A. A large majority of them have caffeine in some form.

Q. Are there great many that do not have caffeine in them?

A. I do not think so.

Q. Are there any that do not contain caffeine? Are there any that do not contain any coal tar derivative?

A. Well most of them do.

Q. But in fact all of them do not?

A. Possibly—you mean headache things?

Q. Yes.

A. Only headache things ——

Mr. Miller: What is your answer, what do you mean to be understood as saying

A. I stated headache medicines so-called nostrums or patent medicines probably all contain coal tar products but caffeine medicines do not contain coal tar ——

BY MR. SIZER:

Q. There are a great many patent medicines that contain sugar? Are there not?

Mr. Miller: That is immaterial.

The Court: Yes.

BY MR. SIZER:

Q. Now, Doctor, was your deposition taken in this case at New Haven some months ago?

A. Yes sir.

Q. Now, in that deposition I will ask you if this question was not asked you and did you make this answer, and if you still assert that it is true?

The Court: Does this contradict anything that the witness has stated?

Mr. Sizer: I think so.

BY MR. SIZER:

Q. Now the question was: "Q. Would the effect of caffeine as taken in tea ond coffee be the effect of the similar amount of caffeine taken in water."

A.. Well, I don't think so—

Q. But didn't you answer it this way: "If the caffeine was taken with hot water and a few aromatic oils as oc-

Volume II.

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1915.

No. 382.

THE UNITED STATES, PLAINTIFF IN ERROR,

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT, AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

FILED JULY 14, 1916.

(24845)

INDEX

S. S. Cohen 505
Maurice V. Tyrode 525
F. P. Morgan, recalled 553
Robert J. Formad 557
B. A. Gallagher 583
Worth Hale 587
William Salant 610
B. A. Gallaher, recalled 631
F. P. Morgan, recalled 632
H. C. Fuller, recalled 634
Albert P. Matthews 652
J. W. McQuillen 679
J. F. Shephard 692
S. R. Barnes 694
Worth Hale, recalled 699
L. F. Kebler, recalled 704
W. F. Boos, recalled 706
R. T. Wright 708
W. J. Dobbs, recalled 710

DEFENDANT'S TESTIMONY.

John S. Candler 712
Chas. H. Candler 742
G. L. Mitchell 782
L. Schaeffer 787
John W. Mallet 812, 835
Exhibit to Testimony of Howard Candler 814
Chas. E. Caspari 878
Thomas G. Morris 897
A. S. Clouting 901
Henry A. Newbold 905
R. C. Kell 908
Victor C. Vaughan 915
L. Schaeffer 970
John M. McCandlass 978
J. A. Wesener 987

curs in coffee it would be absorbed as quickly and have the same effect?"

A. That is all right.

Q. Now, you were speaking of the analysis, or I will first ask you, you were submitted an analysis of the coca Cola syrup awhile ago?

A. Yes sir.

Q. Would there be any difference in the effect of caffeine as contained in that mixture and a similar amount of caffeine as contained in coffee?

A. In my opinion, yes.

Q. Now, didn't you answer that question in this way in your deposition heretofore taken: "I see no difference between a glass of coca cola with simple things except caffeine and a half a cup of coffee which represents about a grain of caffeine."

A. I think there would be more caffeine action when it was not combined as it is in coffee or tea.

Q. Now, Doctor, is this the answer as given to that question before you: "I see no difference between a glass of coca cola with simple things, except the caffeine, and a half cup of coffee representing about a grain of caffeine."

A. Perhaps I did not digest the question; I think caffeine if free acts as caffeine, but in combination at the same time with the empyreumatic oils, or surrounded by tannin in tea, I don't think it would be as rapidly absorbed, and therefore I do not think the action would be as intense.

Q. Now, don't you know that caffeine is free in coffee when taken as a beverage?

A. Yes, but the other surroundings impede its absorption.

Q. But I am taking caffeine with another stimulant, to-wit: caffeine, both free, would the action be any less because it is taken with that additional stimulant?

A. That would depend upon the condition of the stomach—most any oil impedes absorption in the stomach.

Q. Do you know what this oil of caffeal is?

A. It is an aromatic.

Q. It is a stimulant itself?

A. Any aromatic oil is a slight stimulant in the way of causing indigestion in the stomach—

Q. And therefore you would get when you take coffee the stimulation of this caffeal in addition to the stimulation of the caffeine?

A. Do you mean a stimulation of the stomach? The intestines or of the brain?

Q. Well, just any kind of stimulation, you get stimula-

tion of some kind?

A. That is too broad a term, that word "stimulation".

Q. Does it stimulate the stomach?

A. It causes a greater blood supply to the stomach. It may obviously interfere with the production of hydrochloric acid.

Q. Is this true that when you take a hot drink it is absorbed more quickly and the effect more powerful than when you take a cold drink, the contents being the same?

A. Well, that depends on what the hot drink contains.

Q. Well, suppose you take a hot drink containing caffeine and a cold drink, would the caffeine be more quickly absorbed in the hot drink than in the cold drink?

A. It will.

The Court: Is there any dispute about that proposition?

Mr. Miller: None provided the contents are the same—

The Court: It will be absorbed more quickly and act more strongly when hot than cold? That will be conceded.

Mr. Miller: Assuming that it is taken under like conditions. I believe that is a fact, if taken under like conditions, doctor?

The Witness: Yes.

BY MR. SIZER:

Q. Now, were you asked this question on direct examination—I believe though I cannot ask you that—it is offered for the purpose of contradiciting what he says on the subject of the difference between coffee and coca cola?

The Court: Former statements which are contradictory statements may be asked.

BY MR. SIZER:

Q. I will ask you if you were not asked this question, and if you did not give this answer in your deposition you gave at New Haven in this case: (*reading*) "Dr. Kebler repeated to you the different ingredients in the mixture or compound that is known and generally sold as coca cola, and as manufactured by the Coca Cola Company, of Atlanta, Ga. Is there anything in that mixture that would make its effects, the effects of caffeine, any different from the effects of coffee, provided that the caffeine is of equal quantity?" And your answer is: "I see no difference between a glass of coca cola with simple things except caffeine, and a half cup of coffee which represents about a grain of caffeine".

Now were you not asked that question by Mr .Miller in

your deposition—I mean on cross-examination, and did you not give that answer to it?

Mr. Miller: I object to that because not contradictory of anything he says here ——

The Court: The exception is over-ruled; You may ask the question,

BY MR. SIZER:

Q. Were you asked that question on that examination and did you give that answer?

A. I was asked several questions—you just read it to me before I give my answer to it—(The question was read to the witness.)

The Court: Now the simple question is, whether you were asked that question and made that answer, that is the full question.

The witness: I certainly did make that answer.

BY MR. SIZER:

Q. Now then ——

The Witness: (*Interrupting*) May I qualify that?

The Court: Yes.

The Witness: At the time of that deposition I had no idea in any manner or shape what you were after. I supposed it was to be boric acid. I had given the subject no consideration whatever. I had not considered the exact constituents for a moment of coffee and tea, except as we know more oil in coffee, and that there is tannin in tea. I had not considered the possibilities of the rate of absorption or the activities, therefore I answered no, and now I state I think there is a difference.

BY MR. SIZER:

Q. What do you now say?

A. I do not think that one grain of caffeine in that amount of coffee will act as quickly or actively as one grain of caffeine in solution.

Q. Now the question is, what is in the coffee that will in any way effect the action of caffeine?

Q. How do the empyreumatic oils affect the action of the caffeine?

A. I think the empyreumatic oils will impede the absorption.

Q. Now, on what do you base that statement?

A. I base it on the fact that the same dose of caffeine as a drug, administered as a drug, has more action than a cup of coffee containing the same amount of caffeine.

Q. Now, doctor, you administer caffeine as a medicine to a sick man don't you?

A. It is true.

Q. And the action of a drug on a sick man would naturaly be more potent than on a well man, would it?

A. Not necessarily, may be much less potent.

Q. If you administer caffeine to a man who is sick to produce medicinal effect, does it not generally have a stronger effect than it would if you gave it to him in a beverage?

A. Caffeine?

Q. Any drug?

A. That is not necessarily true.

Q. Now, on that proposition were you not asked this question on your examination in New Haven and didn't you give this answer to it: "Is the effect of caffeine in healthy individuals and unhealthy individuals the same? Now your answer: "It is intensified in certain kinds of diseases, unhealthy in its action."

A. It is intensified in certain diseases and diminished in others.

Q. What kind of diseases be intensified in?

A. In mental irritations, hysteria, neuresthenia, irritable heart, in bad digestion, in defective kidneys.

Q. In other words it would be intesniified in the kinds of diseases you would give it for?

A. Not necessarily.

Q. Would you give caffeine for that kind of disease?

A. No, sir. I might give it for the heart.

Q. (*Interrupting*) Now to get back to this caffeal proposition—the empyreumatic oil—in what way could that possibly retard the action of the caffeine?

A. It is only a question of absorption.

Q. Do you know or have you any reason to say as an expert that the empyreumatic oil is absorbed any less rapidly than caffeine?

A. That is a matter of opinion and observation; I do not know it chemically.

Q. You don't know it?

A. No sir.

Q. What is there in tea that in any way retards absorption of the caffeine?

A. The tannin.

Q. And in what way does that retard the absorption of the caffeine?

A. Any tannin like solution will interfere with absorption in the stomach.

Q. Now, as a mater of fact you know that caffeine is free in tea?

A. Yes.

Q. You mean now that the tannin retards the absorption of the caffeine and that tannin is more slowly absorbed than the caffeine?

A. Tannin is absorbed, very little of it.

Q. And caffeine is absorbed more rapidly than tannin?

A. Very much more—tannin is hardly absorbed at all, but tannin retards absorption, food included.

Q. In what part of the alimentary canal does the absorption of caffeine take place?

A. In the stomach and small intestines.

Q. Where is the greater part of it absorbed?

A. I can't answer you that but most drugs are absorbed in the upper intestines.

Q. Have you any reason to testify as an expert, and do you say as an expert that caffeine in tea is absorbed less rapidly because of fact it has tannin in it?

A. The more tannin in the cup of tea the less rapidly would caffeine be absorbed from the stomach.

Q. Yet you say now caffeine is entirely free from the tannin in the tea?

A. Yes sir.

Q. And not combined with it in any way?

A. No sir.

Q. Is it absorbed more rapidly in cold tea or in hot tea?

A. In hot tea of course.

Q. You say now that the pressure of any oil will retard the absorption of caffeine in a drink?

A. Oil will retard the absorption of anything.

Q. Unimportant aromatic oil?

A. Yes sir, anything, food products.

A. No sir, it is not.

Q. And you say that because it is oil it will retard the absorption of caffeine, aren't you mistaken about that?

A. It is an oil, well, it is not really an oil—it is one of the ethereal oils.

Q. It contains what you call furfol alcohol?

A. Yes sir.

Q.That is a form of alcohol?

A. Yes sir.

Q. That is not an oil?

A. Too much alcohol will interfere with the digestion.

Q. Isn't alcohol rapidly absorbed?

A. It depends upon the time that is is taken and the condition of the stomach into which it is taken.

Q. And the rapidity with which anything is absorbed depends upon the condition of the stomach at the time it is taken.

Q. Other things being equal is alcohol a substance

that is absorbed with rapidity?

A. Taken on an empty stomach.

Q. Anything absorbed more rapidly on an empty stomach than on a full stomach?

A. Much alcohol will interfere with the stomach digestion.

Q. Now, I didn't ask you that.

A. If it don't digest it won't absorb.

Q. But other things being equal alcohol is more rapidly absorbed than other things?

A. Yes sir.

Q. More rapidly absorbed than oil?

A. Yes, much more.

Q. Do you know how much of this empyreumatic oil there is in a cup of coffee?

A. Approximately a half teaspoonful.

RE-EXAMINATION,

BY MR. MILLER:

Q. Doctor, if the user of tea and coffee in which caffeine is found should increase the amount of caffeine taken daily in his coffee and tea by the consumption of coca cola according to the formula as passed to you, state whether or not the resulting effect in your opinion would be harmful or otherwise to health?

A. It would be harmful on account of the piling up of the caffeine in the system.

Q. Now, you were only asked as to one portion of a paragraph in Dr. Sollmon's Work, appearing on page 172, where it was stated that caffeine in moderate quantities does not seem to become noxious with habitual use. I will ask you if there does not follow in this same connection: (*reading*)

> "When the amount taken is too large it presents the same symptoms in persistent form which are seen in acute poisoning, tremors, nervousness, palpitation, etc. The mind also seems to suffer and chronic melancholia is a frequent phenomenon."

Mr. Sizer: That is not bearing on the question I asked him—I asked him as to the moderate dose.

Mr. Miller: Does that appear in the same paragraph and as a part of the text?

The Witness: Yes.

Mr. Sizer: That is treating of caffeine taken in excessive doses. I didn't ask him about the effect of it in excessive doses—I tried to limit his testimony to that very

point. I was only asking him about the effect of it taken in moderate doses.

Mr. Miller: They proved it has been, or we proved that it has been taken in excessive doses, in very many instances, that it was a habit-forming drug, and in that same connection I assume that we have a right to have what this author says on that subject.

The Court: He was cross-examined simply on the one question, he was confronted with authorities simply on the one question of the effect of caffine in moderate doses; he was not confronted with any authority on the question of caffeine in large doses. I don't think the question competent; I do not think his being cross-examined as to an authority on one point justifies his testifying to other points he was not cross-examined on.

BY MR. MILLER:

Q. What do you understand the writer to mean there by the term "moderate dose"?

Mr. Sizer: I object to that.

The Court: Unless the term "moderate dose" has some technical scientific meaning ——

Mr. Miller: I think it does.

The Court: Then you may ask him.

BY MR. MILLER:

Q. I ask you whether or not the term "moderate dose" as given in these text books has a well understood and scientific meaning by the medical profession and if so tell what it is?

A. A Moderate dose is a dose that we consider small.

Mr. Sizer: I object to that.

The Witness: In other words the dose of the pharmacopiae would be a moderate dose, that is one grain of caffeine.

BY THE COURT:

Q. You mean moderate dose as prescribed by the pharmacopea?

A. No, not necessarily.

Q. Has it and different meaning in medical work than it has ——

A. (*Interrupting*) It means a dose a little above what is put as the minimum dose.

Mr. Sizer : He don't answer your Honor's question. He has not shown any technical meaning of the word however.

The Court: The witness says that it means a dose a

little above the minimum. Do you mean to say that is the technical way in which the word is used?

A. That would be generally understood, not what term a large dose a little above the minimum dose.

Mr. Sizer: That is the ordinary meaning of the word "moderate."

BY MR. MILLER:

Q. Is that or not the way in which it is generally interpreted and understood by the medical profession?

A. It is.

The Court: I overrule the exception; I do not think it changes the use of the word very much, and don't think it very material one way or the other.

BY MR. MILLER:

Q. State whether or not it is true that caffeine in your opinion as used in a beverage or in the mixture as shown on this formula that you have exhibited, or that is served in the beverage of six to eight ounces of carbonated water would be considered a deleterious ingredient?

A. I think so.

Q. From a hygiene standpoint?

Mr. Sizer: I object to that because that is a matter in cheif that has already —

Mr. Miller: (Interrupting) I didn't ask about it. Mr. Sizer asked this witness if there was any distinction between a deleterious substance and deleterious effect, and rather, as I thought, left the confused idea before the jury, and I ask him now whether or not he considers this deleterious ingredient served —

The Court: (Interrupting) Is the only ground of objection that it is matter in chief?

Mr. Sizer: And that it has already been gone into.

The Court: It is overruled.

Mr. Sizer: It is a leading question furthermore; he has already gone fully into all the effects of caffeine, and I have cross examined him on it, and now Mr. Miller comes back and asks the question and re-opens the whole discussion.

Mr. Miller: I didn't use the word or term "deleterious."

The Court: I do not think it is leading. I am not disposed to draw the line very closely, but I think the question is objectionable because—for it asks the witness as to whether he considers it a deleterious ingredient. An expert witness may properly testify as to the results and effects, and then whether those things are deleterious ingredients is not a matter for the witness.

Mr. Miller: But that was not the ground of objection.

The Court: I am making it myself to save time. I don't think it is a proper matter for expert opinion, that is a matter that the jury under direction of the court will have to pass on.

BY MR. MILLER:

Q. Before anything is absorbed that is taken into the stomach, whether it be hot or cold, state whether or not it has to come to the temperature or near the temperature of the stomach?

A. Yes, almost invariably.

Mr. Miller: Your Honor holds that I cannot inquire or ascertain his opinion as to whether or not caffeine as shown in the syrup by this analysis is a deleterious ingredient?

The Court: That is one of the matters to be submitted to the jury and it is not the province of an expert to pass on that question. He may testify as to the effects, and all that, and let the jury determine —

Mr. Miller: May I submit that poison is one of the very questions —

The Court: Poison might have a definite specific definition which the word deleterious would not have; I have not ruled very closely on that.

(Witness Excused.)

(Analysis.) 3968 B.

Caffeine 0.20 per cent or 1.19 grains per ounce.

Phos. Acid 0.19 per cent.

Sugar 48.86 per cent.

Alcohol 1.27 per cent.

Caramel, glycerine,

Lime Juice, oil of cassia

Water about 41 per cent.

S. S. COHEN,

the next witness called upon behalf of the plaintiff, of lawful age, first duly sworn, tesified:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. Doctor Cohen, where do you reside?

A. Philadelphia.

The Court: I have not yet ruled or intended to rule whether the word "poison" as used in the act is used in the technical or ordinary sense. I have permitted proof as to the technical use, reserving the question until later in the case.

BY MR. MILLER:

Q. Where do you reside, you say Philadelphia?

A. Yes, sir.

Q. What is your profession?

A. Physician.

Q. For how many years have you been a physician?

A. Since 1883, 28 years.

Q. And graduated where?

A. Jefferson Medical College.

Q. Have you had any professional medical connection with that college since?

A. Yes, sir.

Q. Tell briefly?

A. I am now the professor of clinical medicine, physician to the hospital, and previous to that I held various medical positions.

Q. How long have you held your present position?

A. About eight years.

Q. Are you connected with the hospital that is connected with that college?

A. Yes, I am one of the attending physicians.

Q. Have you any connection with other hospitals other than that either as a physician or as a consulting psysician, and if so what?

A. I am physician to the Philadelphia General Hospital; consulting physician to the Jewish hospital; physician to Rush hospital for consumption, consulting physician to the Pennsylvania State Hospital for the Insane, and formerly was attending physician at the Philadelphia Polytechnic.

Q. Have you held any official connection with the American Medical Association or the medical association of your State or City, and if so breifly state?

A. I am a member of the American Medical Association and was at one time chairman of the section on Materia Medica and Therapeutics. I am a member of the Pennsylvania State Medical Society and have been chairman of its committees on Physiology and other subjects, and I have been president of the Philadelphia County Medical Society.

Q. Have you any connection with the Pennsylvania State Hospital for the Insane?

A. Yes, I am consulting physician to that.

Q. Now, in addition to this work state whether or not you have had active practice?

A. Yes, I have been in active practice for twenty-seven years, more active in the latter portion than in the earlier.

Q. In connection with your duties do you or not see

your patients face to face?

A. Always.

Q. State if you are acquainted with the substance known as caffeine which is now under consideration here?

A. I am.

Q. What character of substance is it?

A. It is a drug.

Q Is is poisonous or otherwise?

A. It is a poison.

Q. I pass you the formula or rather the constituents of Coca Cola syrup as testified to by Dr. Fuller in this case, and ask you whether or not the amount of caffeine as contained in that analysis if taken into the stomach once or oftener during the day would produce any marked symptoms or effects and if so what?

A. It depends of course upon the frequency with which it was used and the constancy of its use; it would depend upon the person who uses it; with young people, with feeble persons, with invalids, with nervous persons, and with old persons it would have much greater harmful effects than with persons not young, adult and early middle life, who were perfectly healty who had no special susceptibility to caffeine and who do not belong to the group, the very large group of nervous persons. Then again it would have greater harmful effects upon people who have sedentary habits than upon those who do a good deal of outdoor work, a good deal of muscular work, or live an active life in the open air. The harmful effects would of course be those of caffeine in general.

Q. And what are those?

A. The action of caffeine may be summed up in this way: It is an excitant leading to over action. This over action is followed by fatigue and possibly by exhaustion, and that leaves a person in what we call a condition of irritability, weakness, that is to say his energy has been used up, in a bad way, the machine has been driven too hard and too long and its left in a wobly condition, partially worn out and liable to go off when it ought to be quiet.

Q. Now, assuming that a person is accustomed to normally taking tea and coffee, one, two or three cups per day with his meals—state whether or not the adding of the amount of caffeine contained in this mixture that you have, Coca Cola, assuming you take an ounce of the mixture that contains one or 1.21 grains or about that of caffeine, would increase the effect of the caffeine that had been previously taken in the tea or coffee or that was being taken in the tea and coffee?

A. That is a simple matter of common sense. Of course it would be that much more harm than his tea and coffee had already done him.

Q. Now, state whether or not that effect would be or the effect of that as resjects health would be beneficial or otherwise?

A. Harmful.

Q. Are children as susceptible or more or less susceptible to the effects of caffeine than adult persons?

A. Children are very much more susceptible than grown up persons. In fact many physicians caution strongly against the use of caffeine in disease of children, saying that it must be used with the greatest of caution in diseases of children as it is so likely to do harm.

Q. State whether or not you have observed cases of caffeine poisoning?

A. I have observed cases of caffeine poisoning from tea and coffee and guano. I have not observed cases of caffeine poisoning personally from the alkaloid given in solution or swallowed as a powder.

Q. State whether or not you treat those cases?

A. Yes, sir.

Q. What is the treatment resorted to to relieve against caffeine poisoning?

A. Well, of course that would depend upon the particular state of the particular individual and the environment. The first thing of course would be to try to iwthdraw the tea or coffee, whatever the person had been in the habit of using—sometimes that cannot be done abruptly and sometimes it can because the system has become so accustomed to this artificial excitation that when it is withdrawn the weakness that is left is so great that you have got to go along gradually, just as you would do in the case of opium or any other artificial excitant or stimulant, or sedative or whatever it may be.

Q. Is or not caffeine a habit-forming drug?

A. It is.

Q. In what sense do you use that term, Doctor?

A. In the sense of creating an abnormal craving for the substance.

Mr. Miller: You may cross examine.

CROSS EXAMINATION,

BY MR. SIZER:

Q. You habitually use coffee, Doctor?

A. I use coffee habitually.

Q. You take it as a drug?

A. I use it because I have been accustomed to the slight stimulation which it gives after work, and because I am satisfied to pay the price of using it to relief fatigue of my daily labor.

Q. Taken in the form in which you take it it is not a drug is it?

A. It is.

Q. Do you take pepper on your food?

A. I do not.

Q. Do you take salt with it?

A. Very rarely.

Q. Is that a drug?

A. What?

Q. Salt?

A. No, it is a condiment.

Q. Well, isn't it classed as a drug?

A. It is properly a food because the body needs such a substance, it helps to furnish the mineral substances which are needed by the body, or part of the body, and needed by the body for its work; the difference between that and caffeine is that the body does not need caffeine for its work.

Q. Now supopse that the body does its work better when you take a little caffeine, is that a benefit to the individual who takes it?

Mr. Miller: I object to that as argumentative.

The Court: Yes.

BY MR. SIZER:

Q. Is it not a fact that when caffeine is taken moderately the brain and body are enabled to act better than without it?

A. No, they are not enabled to act better. They are enabled to act longer.

Q. Does or not the mind act more clearly if you took caffeine very moderately?

A. No sir, if the mind is already acting perfectly clear caffeine won't make it act any better; it will make it act worse; if a person is fatigued and excited it acts as an artificial bracer for the time being, so he is enabled to go on with work when he ought to stop—then caffeine will enable you to go and work, that is keep the body at work when he ought to stop and in that—

Q. (Interrupting) But suppose a man gets up in the morning and does not feel quite as bright as he would like to and he takes a cup of coffee, isn't it a fact that the effect of that coffee is to make him feel better?

A. Yes sir.

Q. And is it a benefit to him?

A. Not always —

Mr. Miller: I object to that, it is argumentative; if counsel wishes to ask if it has a beneficial effect I have no objection, but as to whether it makes him feel better I object to that.

Mr. Sizer: The whole line of testimony of these experts is mainly argumentative; there is no way to get the details of it without it—and I have just continued the same line of argument that he started out with in the examination in chief. He asserts that caffeine is a drug, and I was showing the manner in which it is used, and going into the details of the effects of its use.

The Court: He did not say it was a harmful drug. If the witness had said it was a harmful drug I think you could cross examine him. You may ask him as to any other facts, whether he considers it beneficial or not—I do not think he testified that it was a harmful drug.

BY MR. SIZER:

Q. About how much coffee do you drink a day?

A. I drink usually two half cups.

Mr. Miller: I do not object to his going into the inquiry about coffee except for the fact it prolongs the case, and how much coffee the witness drinks I submit is not relevant to the issues at all.

The Court: I think it is competent; it shows how much personal experience the witness may have had with coffee, and casts some light on the weight to be given to any one's opinion, from personal experience, and in that view I allow it.

BY MR. SIZER:

Q. How long have you been drinking it at that rate?

A. When I first began to drink coffee I suppose I drank about what would amount to what is called half a cup, that is a half a cup of coffee and half of milk and cream every morning. Afterwards when I got to working pretty hard, when I would come from seeing my patients in the morning I would sit down at that time at lunch and got in the habit of taking a half a cup at that time, then you want to know my experience, I will give it to you. Afterwards I found that I had a craving for more —

Mr. Sizer: (Interrupting) Just answer my question first, doctor?

Mr. Miller: That is the only way he can answer it.

The Court: What was the question?

(The question was read to the court as follows: "How

long have you been drinking it at that rate?")

The Court: The question is rather narrow, just make an answer to that question?

The Witness: May I explain then?

The Court: Yes?

The Witness: Then I have been drinking it at that rate for about three years. Now I want to make an explanation why I —

The Court: (Interrupting) I don't think that is an explanation, nothing to explain except the fact.

BY MR. SIZER:

Q. You say that the use of caffeine containing substances causes an abnormal craving for them doctor?

A. Yes, sir.

Q. In all cases?

A. Yes, sir.

The Court: I did not mean to rule his other experience as not competent but merely it cannot be given in answer to that question.

BY MR. SIZER:

Q. Has that been the case with you doctor?

A. It has.

Q. That you have formed an abnormal craving for coffee by taking two half-cups of coffee per day?

A. Now then I will explain what I mean.

Q. I ask you that simple question?

A. Not by taking two half cups of coffee for three years—I have prevented the abnormal craving which was about to develop when I was taking three cups a day.

Q. You have not formed any abnormal craving for it by the use of two half cups you have taken?

A. I think it would be better for me if I didn't take any.

Q. Have you formed any abnormal craving for it by the use you have made of it?

A. I believe that the craving which any man, myself included, for taking his coffee day after day is abnormal.

Q. And so you say now you have an abnormal craving for coffee?

A. Explained as I have said there that I think every man who is in the habit of drinking coffee daily does so because he has an abnormal craving for it, and while it is not a very serious matter and while it don't interfere with his morality like morphine or opium yet he would be very much better off if he didn't do it.

Q. I will ask you if you know of Bunge's work on Phy-

siologic and Pathologic Chemistry?

A. I know of the work.

Q. Is it a standard authority?

A. Some people think so and some think not.

Q. What do you know about it or think about it?

A. I am not an expert on Pathologic chemistry.

Q. Are you prepared to state whether or not he is a standard authority on the subject or not?

A. No, sir. I say some people accept it and some do not.

Q. You say you are not an expert on pathologic chemistry?

A. No. Not on technical pathologic chemistry; I do not make laboratory experiments, or animal experiments or any thing of that kind.

Q. Now, you say that caffeine is poisonous. That is, you mean when taken in large quantities?

A. Under my conception of a poison, caffeine is to a certain extent poisonous in any dose, but of course it becomes more and more poisonous as the dose is increased.

Q. What do you mean now by "poisonous" in that connection?

A. By "poisonous" I mean anything which disturbs in a harmful way the action of the human body when it is taken in relatively small quantities.

Q. Is it not a fact and so recognized in the authorities that when caffeine in the form of coffee or any other beverage is taken in relatively small quantities, it acts as a stomach tonic, stimulates the body, the nerves and the brain?

A. At their own expense, and therefore harmful.

Q. Is it not recognized that it produces those results, Doctor?

A. It does.

Q. It stimulates the body, for one thing?

A. Yes.

Q. Impairs the digestion?

A. Yes.

Q. And stimulates also the brain and nerves?

A. It excites them. It does not stimulate them.

Q. You say it does not stimulate them?

A. No, not in the sense in which you are trying to use the word "stimulation."

Q. Do you say it is a stimulant or not, in the proper sense of the word? You need not seek out my meaning for it, but in the ordinary meaning of the word "stimulant," is it not?

A. It is a stimulant in so far as it excites to action,

but it is a stimulant of a kind which is always accompanied by after depressing harmful effects.

Q. In so far as it improves digestion it is not harmful, is it?

A. In so far as it improves digestion it is not harmful, but in so far as the digestion is disturbed by the secondary effects it is harmful.

Q. Just leave aside for a moment the secondary effects, and come to the primary effects. You say the effect of caffeine in moderate doses is to improve the digestion. Is not that a distinct gain?

Mr. Miller: I think that is a matter of common knowledge.

The Court: I guess that is obvious.

BY MR. SIZER:

Q. How about stimulating the appetite? You say it does. You do not say that is of itself deleterious, do you?

A. It may be, yes. It may make a man eat too much, although —

Q. Suppose you dress up a man's food in an appetizing way, put parsley around on his beefsteak, and things of that kind. That stimulates his appetite, does it not?

Mr. Miller: I submit that is foreign to the controversy.

The Court: The exception is sustained.

BY MR. SIZER:

Q. Is it not further true that caffeine, taken in the form of a beverage renders the reasoning and imaginative powers more acute?

A. I have just said what my opinion of that was, that if a man is in a perfectly normal and healthy condition and not fatigued, his mind is working at its best, and whatever he takes with the idea of stimulating his reason or his imagination, or any of his intellectual powers, is taken under hallucination and fatal delusion. If a man takes whisky or any other form of alcohol, in order to make him talk more brilliantly or thinking that it will make him talk more brilliantly or anything of that kind, he is fatally mistaken. He impairs his powers and does not benefit them by it; but if a man is fatigued and he wants something to overcome the sensation of fatigue and enable him to go on and work when he ought really to be resting, then his alcohol or his coffee will permit him to do it.

Q. Now, will you please read that question to the Doctor—I asked you if it is not true, Doctor, that the effect of caffeine on the brain is to stimulate the reasoning and

imaginative power. Is that true or not?

A. That is not true.

Q. It does not do that?

A. No, and I have just explained why it is not true.

Q. Does it enable the person to perform more work than he might otherwise?

A. It enables him to perform more work than he ought to be doing, yes.

Q. In every case then when a man takes coffee or tea he produces more work than he ought to be doing?

A. That depends on the man. It enables him to do it, if he wants to do it.

Q. Then that is not the result in every case?

A. It enables him to do it. He does not always do it.

Q. Then when you say it makes him perform more work than he ought to perform, that statement is not stirctly correct, because it does not do that universally?

A. Yes, the statement as I make it is correct.

Q. That is, that it always makes a man do more work than he ought to do?

A. No. I say, enables him to do.

Q. Suppose he sits down and does not do the work, does not do any more work than he ought to do.

A. Yes.

Q. Then what deleterious result follows that?

A. Then the deleterious result there is that he is excited, his brain cells have been excited and he does not use them, and the excitation reacts on the brain cells themselves and injures them.

Q. And that is the case now, when a man takes caffeine in any amount?

A. No, I do not say that. I say that its habitual use in that way, and occasional use, does not produce effects that we can demonstrate. We can only infer that they exist from what we know of the effects on the habitue.

Q. How much caffeine would a man have to take in order to produce that abnormal stimulation that you speak of, which will result in enabling him to do more work than he ought to do?

A. That depends on the individual. With some persons it may be as little as half a grain, and with others it may require two or three grains.

Q. And with a man who is accustomed to use tea and coffee, it would take still more, would it not?

A. That I do not know.

Q. You do not know anything about the effects of tea and coffee, then, on those who are accustomed to its use?

A. Yes, I do know, but I have not the data with which

to answer the question that you ask me.

Q. The fact is, is it not, that a man may acquire a tolerance for caffeine-containing substances, by reason of which the taking of a cup of coffee or a cup of tea would have much less effect on him than it would on one who is not accustomed to it?

A. He may acquire such a tolerance to tea and coffee that the taking of caffeine will have less obvious effects, less external effects, show itself less in his motion or his conduct; but the effect on his cells, the effect on his brain, the effect on his spinal cord, the effect on his stomach, and the effect on his liver, will be just as bad.

Q. How do you know that, Doctor?

A. I know that from observation of patients and of persons who have taken tea and coffee.

Q. By observation on patients who have come in for treatment?

A. And also from my reading and from communication from fellow physicians who have observed cases.

Q. How much of that is based on your communications with your fellow physicians who have observed cases?

A. It is impossible for me to separate my knowledge into its elements. I hope it is digested.

Q. Then your testimony is based partly on your experience with patients you have treated?

A. Partly.

Q. You do not take coffee or tea away from all patients that you treat?

A. I do not.

Q. Why not?

A. Because, as we have to do it in every medical problem and every problem in life, in fact, we have got to weigh the evils, and we sometimes choose the lesser evil.

Q. Why do you take it away from any of them?

A. Because the evil is so great there that it is absolutely necessary.

Q. That is, if they are using it excessively you advise them to stop it?

A. If they are using it so much that its disadvantages have become very obvious, or on account of the peculiar situation of the patient himself—or herself—very often it is herself—the execessive nervousness or irritability, especially the irritability, and the disinclination to work, and the neurathenia, and all that sort of thing, that they have become very great or have become moderately great, then I take it away because the harm over balances any possible good that might come out of it.

Q. And if you think the harm will not overbalance any possible good which will come out of it you do not take it away?

Mr. Miller: I submit that is foreign to the controversy, what this man does in particular cases as a matter of treatment and the relative effects of good or harm; it is purely personal to him.

The Court: I overrule the exception.

The Witness: Then I have to answer that by referring to the general practice of physicians.

BY MR. SIZER:

Q. No, you do not. I am not asking you to refer to any general practice. I ask you to answer the question.

A. I will answer the question and then ask permission to explain it. I do not take it away under those circumstances for this reason —

Mr. Sizer: I object, I did not ask him for any reason.

The Court: The witness is entitled to give his reasons He may give his reason.

The Witness: — that when we get a diseased organism, and when we are dealing with a sick person we are dealing with a machine that is out of order—that is the first thing. Now, it is out of order in various ways; sometimes one part is more out of order than another. Sometimes one part is going too fast and another part going too slow. Sometimes one part is working smoothly and another part is working in a jerky way. What we have got to do in such a case is to make the machine run smoothly and harmoniously, if we can, and we can sometimes do that better by leaving some of the particular parts in the shape in which they are, and adjusting other parts so as to meet up and balance it. What we try to do is to restore the balance, or we cannot make a perfect machine out of it again.

Now, where these persons are in this condition, where we cannot hope to bring them back to a normal state, then we have got to consider how much worse would it make them to do that, how much better will this be, and if it makes it better in this end how much worse will it make it in the other end. We have got to weight all the probabilities, just as I suppose a lawyer does when he has got a bad case—and then do what is best under the circumstances.

Q. You testified a while ago, that your statement that caffeine was always injurious in any quantities was based partly on your experience with your patients and partly on your reading, and partly through communications with other physicians,—did you?

A. Yes.

Q. Now then, do all the patients that come to you to be treated show indications of suffering from the use of caffeine?

A. That depends upon what you call indications.

Q. Take it in any way, any indications of suffering from the use of caffeine; do all the patients that call on you manifest indications of that kind?

A. Obvious indications are not shown by every person, but many persons do show obvious indications. Other persons show such symptoms that one is reasonably entitled to infer, taking that indication with his other experience, that they are being harmed, we will say in a very slight degree but still being harmed.

Q. Will you kindly answer the question I asked you?

(Thereupon at the request of counsel, the stenographer read the pending question.)

Mr. Miller: Be treated for what, I asked.

Mr. Sizer: I did not ask him. Please allow me to put the question myself.

The Witness: I submit I cannot answer that question yes or no. I have to answer it by answering it in the way I did.

BY MR. SIZER:

Q. Do you pretend to say that you do not know whether all the persons who come to you for treatement give indications of having been injured by the use of caffeine?

A. No. What I pretend to say is this: That it is only within the last five of six years that my attention has been so strongly turned to this subject that I have taken the matter into consideration. It is a subject which is a little difficult because persons are submitted to all sorts of harmful things in the course of their lives and to separate one from another is difficult.

Now, while I infer in certain cases that the people are being harmed by tea and coffee, I have not yet come to the point where I can be entirely postive that they show obvious indications of it. I am tending in that direction, but have not got far enough to be positive.

Q. I am not asking you about back five or six years. Have all the patients who have come to you for treatment within the last six months shown indications that they were suffering from the use of caffeine?

A. That they were suffering from its use? No.

Q. All of them?

A. I say, no.

Q. None?

A. I did not say "None." No.

Q. What did you say?

A. I answered your question "No" on that word "suffer."

Q. Did all of them show any indications that they had been injured by the use of tea and coffee, or caffeine containing substances?

A. Those of them who had been in the habit of taking tea and coffee all their lives have shown certain signs which made me think that they might have been injured by tea and coffee, but I have not come to a positive conclusion in that respect, apart from my general opinion.

Q. You have not been able, then, to come to any definite conclusion as to whether or not they were in a majority of the cases suffering from the use of tea and coffee, or caffeine-containing substances, or whether they had been injured by them?

A. I have not been able to come to a conclusion in every individual instance; no.

Q. What works have you read, Doctor, what medical authorities do you refer to that sustain the proposition that the use of tea and coffee in all cases produces deleterious results?

A. I think that if you will take the writings of any man who has written on the subject of tea and coffee who is entitled to express an opinion, clinically, you will find on reading everything that he says, taking the whole context and not taking out a word here and a word there and a line here and a line there somewhere else, but taking the article as an entirety, I should be very much surprised if you will find any good authority who will deny that fact.

Mr. Sizer: I will ask the stenographer to kindly read that question to the Doctor.

(Thereupon the stenographer read the last question to the witness.)

The Witness: Well, I answered that, taking the medical authority as a whole and now picking out isolated cases from his works, all that I have read that are entitled to express an opinion on the subject, express that same opinion.

BY MR. SIZER:

Q. Now, Doctor, we do not know what you have read. I will ask you again to answer the question which I propounded to you a while ago.

The Court: He wants names.

The Witness: Well, if you want me to give you the

names of all the books I have read,—I do not remember what every particular author says on every particular subject but I have read a large number of books which speak of tea and coffee, and among them I can mention Stille and Mesh, and Hare.

BY MR. SIZER:

Q. Take Doctor Hare, for instance. Does his work say that the use of tea and coffee in all cases produces deleterious results?

A. No. I say that I cannot tell you what any authority says in the specific language, but that if you will take the entire opinion of any one who is entitled to express it, that is a legitimate inference from what they say.

Q. Do you mean to say, then, Doctor, that the legitimate inference from what Doctor Hare says on that subject, taking all he said, is that the use of tea and coffee in any quantity produces deleterious results?

A. I do not know whether that is in Doctor Hare's book or not.

Q. Do you know whether or not it is in anybody's book, and if so, whose book do you know that it is in?

A. I cannot give you a specific book, but I am willing to look at any book which you wish to show me,—and I do not need any other authority for that than my own observation.

Q. Your own observation has been principally confined to people that came to you as patients for treatment, has it not?

A. Patients for treatment for various things; yes.

Q. People who were sick?

A. Not always people who were sick; no. People who were well—who think that they are well and want advice on one thing or another.

Q. What did they come to you for treatment for, if they were well?

A. I say, they want advice on various subjects.

Q. They wanted advice because they did not think they were well?

A. No; sometimes they wanted advice on subjects which had nothing to do with their health.

Q. In those cases of people who came to you for advice, in connection with matters that had nothing to do with their health, and that were not perfectly well, you would observe indications that they had been injured by tea and coffee?

A. Some cases.

Q. In all?

A. Not in all; no.

Q. In the majority of them?

A. I cannot say a majority, but in a fai. proportion.

Q. How could you observe that they were suffering from this tea and coffee, or that they had been injured by tea and coffee, if they were perfectly healthy and did not need any treatment for their health?

A. I say they thought they were in perfect health; but I noticed they were irritable for one thing.

Q. And they came to you to be treated for irritability?

A. No; they came to me to talk about—a doctor is a sort of father confessor sometimes, and people come to him to talk about all sorts of things, and you will notice in the course of conversation, if a man is excited and irritable, that he magnifies his trobules, that he is unduly depressed. He does not know it. If you were to tell him he was sick he would not believe you; but you can see it and you can by well directed questions find out whether he is using tea or coffee to excess. In some such cases it has been so, and in other cases it has not been susceptible of verification,—could not prove it, supposed it but could not always prove it.

Q. A great many people, then, come to you suffering with irritability and nervousness and you would find on investigation that their condition was not in any way attributable to tea and coffee?

A. I found that I could not prove it was solely due to tea and coffee, but I am strongly of the opinion that tea and coffee contributed to the condition.

Q. A good many other things cause irritability and nervousness besides tea and coffee?

A. Oh, yes.

Q. And so the mere fact that a man is irritable or nervous would not necessarily indicate that his condition was due to tea or coffee?

A. No. I have been trying to show that, that you have got to study the case and cannot always prove it.

Q. And when a man would come to you to consult you about other matters, if you observed that he was irritable or nervous, would you just go and look up his case and see what was the matter with him and proceed to treat him for irritability?

A. Not always. If he had come there to see me about something or if he was a patient having confidential relations, I might say to him, "Look here, you are making too much of this thing. You are unduly sensitive; you are excited." And we would get to talking about other things and I would ask him whether he took tea or coffee.

Q: And that, now, is the kind of people on whom you have made the observations on which you state that the use of tea and coffee in any quantities always produces deleterious results?

A. No; those are not the only kind of people. Those are some of them.

Q. What other kind of people have you made observations of that kind on?

A. On people who have come because of the symptoms, and, upon investigation, have been shown to be users of tea and coffee—and especially I noticed when I used to work in the Philadelphia Polyclinic.

When I first started at work there I used to go into the dispensary myself and see every patient who came there, and we had at that time the largest out-patient service but one in Philadelphia at that institution in my clinic, and I noticed among the Russian immigrants who were then beginning to come into the country in rather large numbers, excessive nervous irritability, and so forth; and on inquiry I found that most of them were habitual tea drinkers.

Q. And they drank very large quantities of tea, did they not?

A. They drank it in glasses rather than cups. They drink from two to three or four glasses a day of tea. I do not know how strong it was; but I began to think then that a good deal of their irritability was due to their tea, although they might come from quite other conditions than those which we observed.

Q. They were all people that came to confer with you in your capacity as phisician?

A. Yes.

Q. Because there was something the matter with them and they wanted to be treated?

A. Yes; and I observed these other symptoms that they had not spoken about.

Q. And so you draw the conclusion that practically all the people that come to consult you on the various ailments that they may be afflicted with, are really suffering from deleterious effects of tea and coffee?

A. No; I said the reverse, distinctly, before.

Q. Did you not say that you drew the conclusion from these people who came to confer with you that in all cases where they had used tea and coffee, they were suffering from the effects of it?

A. No; I did not say that. I said that in a great many cases, although you could suspect that the persons were suffering from the effects of tea and coffee, there were no

obvious indications of it, the conclusion could not be drawn postively.

Q. Why would you suspect it, then?

A. From my knowledge of the effects of caffeine, that cannot conceive how persons can go on taking caffeine day after day and year after year without being injured by it to some extent, though it might not be enough for a scientific demonstration.

Q. In other words, if a perfectly well man comes along and apparently he has got nothing the matter with him, and you find out that he has been drinking a cup of coffee for breakfast for five or six years, you would reach the conclusion that that has injured him in some way.

A. I make that, not on that particular man, but as a general statement.

Q. I say, any man who you might meet, no matter how well he may be apparently, if you find he has been drinking a cup of coffee a day for a number of years past, your opinion is his health has been injured by it?

A. No. I form no opinion on the casual individual who I meet. I form as a general opinion, the opinion that the continual consumption is injurious; but I do not form an opinion as to an individual unless I examine and study that individual.

Q. Did you not say that was so in all cases?

A. I form no opinion as to an individual who I had not personally examined and studied.

Q. You did say a while ago, did you not, that it is universally, always, the case where a man takes tea and coffee in any amount, that he is being injured by it, whether he knows it or not?

A. Whether it shows or not, I believe that his cells and tissues are being worn out faster than they would otherwise be.

Q. And so I say, that if you met a perfectly well man, if you found out that he has been drinking as much as a single cup of coffee a day, you know that his health is impaired.

A. I form no opinion whatever except where I examine the person.

Q. Will this use of tea and coffee, very serious use, produce any organic changes in the human being ?

A. That is a subject on which we have not sufficient data. My personal opinion is that they do, but I cannot prove it. I have no scientific proof of it whatever. It is merely opinion.

Q. In other words, you do not know?

A. It is an opinion, not knowing, I cannot state postively.

Q. In other words, you do not know; is that true?

Mr. Miller: I object to that.

Mr. Sizer: I did not ask him for an opinion that he might have made on anything that he does not know.

The Court: The objection is overruled.

The Witness: I do not know postively.

BY MR. SIZER:

Q. Is it not a fact that if a man has been using tea and coffee for a period of twenty years, or ten or fifteen or five years, and the use of that tea and coffee had been injurious to him, that there would be organic changes manifested in his body after his death?

A. That bring up the reason why I do not know. There are so many other things that no man who dies, unless he dies suddenly by a lightning stroke or prussic acid of something of that kind, will show in his body organic changes, and consequently I cannot tell who her other particular organic changes are due to the caffeine or not. Therefore I do not know, though my opinion, my clinical opinion is —

Mr. Sizer: I did not ask you about your opinion —

The Witness: — that there are such changes.

BY MR. SIZER:

Q. Suppose a man drinks tea or coffee moderately for a period of five years, and then is suddenly killed, is it not true that if that use of tea and coffee has injured him, there will be organic changes in his body, and his organs will not be in normal condition?

A. No, I would not say that because our methods of investigation at present are not sufficient to show those minute chemical changes in the arrangements of the atoms of his brain cells and his nerve cells by which any opinion could be formed.

Q. In other words, the changes would probably be so minute that you could not observe them by post mortem examination?

A. Some changes would be and others might not. According to what those other changes were and what you knew of the previous history of that individual, and everything elese that he has been exposed to, you draw your conclusions, therefore I am very cautious in drawing a conclusion and stating it when I have not sufficient knowledge.

Q. Now, I want you to answer this, if you are able to

do it, and if you are not, frankly say so: Suppose a man has been using either tea or coffee for a period of years.

A. (Interrupting) Yes.

Q. And suppose then he dies suddenly and a post mortem examination is made of his body. If that use of the tea and coffee has resulted deleteriously to him, will there not be organic changes in the body?

A. Not necessarily changes that can be demonstrated.

Q. Then, if there would be any changes, they might be so small they could not be demonstrated?

A. There might be changes which could only be demonstrated by methods of investigation which have not yet been perfected.

Q. And then the question whether there were such exchanges or not would, of course, be mere matter of opinion?

A. No; if we perfect our methods of investigation, then it would no longer be a matter of opinion, but a matter of fact.

Q. You say if you could not discover them they would be a mere matter of opinion?

A. Certainly, if you cannot demonstrate them it would be a matter of opinion.

Q. Now, Doctor, the effect of caffeine would be the same, would it not, whether taken in the form of tea and coffee or in any other way, in any other solution, that is?

A. The amount of caffeine that becomes effective would have the same effect, however it was introduced; but the method of introduction will alter the amount that becomes effective.

RE-DIRECT EXAMINATION,

BY DR. MILLER:

Q. I omitted to ask you if you are the author of any treatise on medicine.

A. I am author of a work, joint author of a work called the Essentials of Diagnosis. That was a little juvenile book, written when I had practiced only a few years.

Then I am the editor of a system, an encyclopedic system called "A System of Physiologic Therapeutics."

Q. Of how many volumes?

A. There are eleven volumes. Then I have written and contributed to great many medical journals and scientific bodies, the transactions of scientific bodies, and the encyclopædias edited by other people—Doctor Hare's encyclopædia, and Keating's and Booth's and Foster's dictionary of therapeutics, and so on.

Q. Is that Doctor Hare who is present here?
A. Yes.
(Witness Excused.)
Thereupon, at 2:10 o'clock P. M., the further hearing of this cause was adjourned until 8:30 o'clock to-morrow morning, Saturday, March 18, 1911.

CHATTANOOGA, TENNESSEE.
SATURDAY MARCH 18, 1911.
EIGHT-FORTY A. M.
Court met pursuant to adjournment.

Appearances the same as on yesterday.

PLAINTIFF'S EVIDENCE CONTINUED:

MAURICE VEJUX TYRODE,
the next witness called on behalf of the United States, of lawful age, first being duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:
Q. Your name is Maurice Vejux Tyrode?
A. Yes, sir.
Mr. Miller: On yesterday, your Honor asked for some authorities, and I have not collated ours under the Food and Drug Act since that time. We have one, of which adverse counsel has a copy, the United States vs. 120 barrels of flour.
The Court: I think I have that. Is that under the Food and Drug decision?
Mr. Miller: Yes.
The Court: I have that, I have not read it recently, though.
Mr. Sizer: That is known as the bleached flour case.
The Court: I have a copy of that. Kindly acknowledge receipt of that letter to Dr. Witherspoon, from whom it was received.
Mr. Miller: I will do so, and have it made a part of his deposition.
Mr. Sizer: We would rather have him here, it he wants to do that.
Mr. Miller: If you don't want to do that, we will leave his testimony as it stands.
The Court: By agreement it could be made part, but otherwise not.
Mr. Sizer: We will confer about that.

The Court: I wish some one would acknowledge receipt to him of that letter.

Mr. Miller: I will be glad to do that.

Q. Where do you reside, Doctor?

A. In Boston.

Q. What is your profession?

A. Physician.

Q. State whether or not you have had any experience as a pharmacologist.

A. Yes, sir: I have worked in pharmacology about fourteen years; was a teacher of pharmacology for about ten years.

Q. How many years experience have you had as physician?

A. As a physician, ten years.

Q. Where have you practiced, in what classes of practice have you specialized?

A. Internal diseases, practically all gastro-intestinal tracts.

Q. That means the taking of medicine internally?

A. Yes, sir; internal medicine, means diseases of the internal organs, excluding the eye, ear nose, and throat and mid-wifery.

Q. You say you have been a teacher for a number of years; with what institution or institutions have you been connected as a teacher?

A. With the Harvard Medical College.

Q. At Boston?

A. Yes, sir.

Q. Were you graduated in that institution?

A. Yes, sir.

Q. What branches did you teach at Harvard?

A. I taught pharmacology and Materia Medica, and also some therapeutics in that, but my position was not as teacher of therapeutics.

Q. What do you mean by Materia Medica?

A. Materic Medica is the study of the properties of drugs, and considered in the broad sense of properties; in the narrow sense, only the chemical and physical properties.

Q. As a student of pharmacology and as a pharmacologist, what did you do and what is the line of your particular investigations?

A. In the study of the action of drugs, their effects upon the animals, also teaching students both experimentally and otherwise.

Q. Now, then you teach of speaking them experimentally, how did you experiment in your institution of med-

ical students?

A. By demonstration, showing the action of various drugs upon animals before bodies of students, and in experimental courses, I have the students themselves study the actions of drugs upon animals.

Q. Now, when you speak of experimentation on animals, do you or not include man?

A. Yes, man may be included but of course men can only be used in a limited way. No cutting operations can be performed on man—different drugs can be given to man to watch the effect upon him, and occasionally we do that. We have the effect of alcohol upon man and upon the muscular strength and nervous system.

Q. State whether or not that is the method adopted by you in teaching pharmacology and study of pharmacology, is the usual one—

A. (Interrupting) Yes, sir; it is.

Q. Have you had any experience in the matter of research, Doctor, and if so, explain what you mean by that?

A. Research is the investigation of problems which are either not clear, or in which an individual experimenter has reason to doubt the previous work in pharmacology, the study of new drugs and also the study of old drugs with a view to clearing up actions which have been vaguely known.

Q. What, if any, experience have you had in that respect?

A. I have worked on research since '96 or '97 until the present time, practically, up to within a few months ago, say six months ago.

Q. With what institution or institutions of learning are you, I mean with what society or societies of medical practitioners, professors, are you connected, just in a brief way, Doctor?

A. With the American Medical Association, the Massachusetts Association, the American Society for Pharmacology and Experimental Therapeutics, the Boston Medical Society, the Boston Medical Science, I should say, rather, the Medical Library Association.

Q. State whether or not you are acquainted with the properties of the substance known as caffeine, and its effects on any part of the human system, by reason of your experiments, investigation and study.

A. Yes, sir; of caffeine.

or to a growing up person, or during the school age period?

Q. Tell what they are.

A. I beg your pardon?

Q. Tell what caffeine is and what the effects are on

those parts of the anatomy which you have observed.

A. Caffeine is considered, and in fact is named as such in Schmiederberg's book, as a nerve and muscle poison. The general effects are those, first of stimulation, then of depression on the central nervous system. The primary stimulation we have—first, the increase in the action of the medullary centers, that is an increase in blood pres sure, an increase of stimulation in action, quickening of the heart, astimulation of the vagous nerve in the medulla, a slowing of the heart, and we have an increase in the action of the muscles, in frogs—or with frogs. There is in human beings, a difference in the work done, there is an increase in the temporary work, an increase—the fatigue comes on sooner. With men, usually, the experience is different—when man is fatigued, caffeine seems to give an increased power for calling on the reserves, and for the production of more muscle and more mental work.

Q. And what is the ultimate result of that as affects health?

A. These results are deleterious, as the stimulation and giving off of energy, or reserve energy, lead to exhaustion and fatigue.

Mr. Sizer: I understood at one place in his answer that the witness said something about what some author says, that some author says so and so about something, and I object to his statement as to what an author says about it.

The Court: The exception is sustained to that portion of the answer, and it is excluded.

BY MR. MILLER:

Q. State whether or not caffeine is a muscle and nerve poison.

A. It is.

Mr. Sizer: I object to that unless he explains in that connection what he means by it.

BY MR. MILLER:

Q. I will ask you to explain, tell what you mean by that.

A. Muscle or nerve poison is one which produces a pharmacological effect, an action on the muscle and nerves; the effect is usually stimulation at first, then depression later, and death of the muscle or of the nerve. In fact, if a muscle or nerve is placed in a solution of caffeine, it is killed and loses the power of electrical stimulation, so that this is truly a nerve and muscle poison.

Q. Have you or not demonstrated that by experiments?

A. What is the effect of caffeine on man as respects the brain?

A. As respects the brain, caffeine stimulates the brain. That is particularly marked, the stimulation of the brain, in those conditions of nerve fatigue where the brain has decreased activity, but this iswith smaller amounts. With large amounts, even the normal brain of a normal man may be intensely stimulated, and headaches, confusions, and all those things, delirium, hallucinations, and even convulsions may be produced.

Q. Is the effect which you have described, Doctor, detrimental to health?

A. It is detrimental to health unless used as a medicine in suitable cases.

Q. And in what cases is it prescribed as a medicine?

A. It is prescribde as a diuretic in order to increase the flow of urine; this it does not always accomplish well on account of constricting influence on the vessels of the kidneys. It is prescribed for diseases of the heart; this action it does not always do well, or does not to my mind act well as a heart stimulant, because it produces irregularities, and there are recorded cases of harmful effects in cardiac diseases. It is recommended also as a stimulant for nerve fatigue. Its use in nervous fatigue, I should only consider worth using in a case of emergency, in a case where the exhaustion was intense and to temporarily tide over the patient, but I should object to its use, although it is sometimes recommended as such, for chronic nervous excitation, as it would increase the exhaustion by drawing on the reserve force instead of causing rest.

Q. State whether or not its effects are more marked or observable than the effects which you have described in any particular class of persons, and if so, in what classes.

A. Yes. sir; the effects are more marked in extremes of age, that is in children, old people, are more marked in females than in males, more marked in people of a nervous condition or nervous tendencies; people who are neurasthenic, or people who are inherently nervous.

Q. State whether or not if a child be in school, at school age, when required to apply its mind to study, this would or would not be marked or more observable as against one who was in the open air and constantly engaged in outdoor exercise.

A. Yes, sir; decidedly; caffeine is much more harmful to people who are engaged in indoor occupations and have very little opportunity for exercise or outdoor work, in clerks, bookkeepers or professional men who work indoors, they are very much more susceptible than people who

out doors as those engaged in farming work.

Q. Speaking of that using up of the reserve force, or the calling on a man who is fatigued to put forth that reserve force which nature has supplied him with to start with, state whether or not exhaustion, or the using-up of that reserve force is beneficial to health, or otherwise.

A. It is harmful, as we have sufficient normal ways of using up the nerve force, or the reserve force, without having it artificially used up.

Q. How does this substance, caffeine, act on the nerves what is its direct effect if it be taken in the mouth?

A. You mean the central nervous system or the peripheral nerve?

Q. Well, both, explain in a brief way to the jury.

A. When caffeine is taken as the active principle of coffee, we have first, an excitement of the brain, and increase in the action of the nerve; we may feel temporarily better, stronger, we may feel that we can do more work; we have the sensation of well being, increased well-being, especially when we are tired out for some reason or another. Succeeding that, there comes a period or stage of fatigue when the brain and the central nervous system in general become tired, almost exhausted, thru the action of the drug; then we have following that irritability; we feel out of temper, irritable, nervous, and very frequently sleepless, or if we sleep, our sleep is not perfect, it is imperfect, we wake up in the morning feeling tired and badly; I should say that in general would be the effects.

Q. It this caffeine be administered in the evening or at night what would be the probable effect of the administration of from one to one and a quarter grains to a child

A. One to one and a quarter grains would almost certainly cause in a child sleeplessness or a restless sleep, and there, then, is a very important point in that the individual may be unconsious during the night, the unconsciousness is not sufficient, probably to cause sleep, the person tosses about the bed, dreams a good deal, and the next morning, wakes up tired, he is not refreshed, and that dose of one and a quarter grains would certainly be sufficient to do that in a child or in a growing adult, in probably a large majority of cases.

Q. State whether or not you have ever made any experiments with caffeine on yourself personally.

A. Yes, sir; I have.

Q. How long since, and over what period?

A. Why, I tried it twice in my life, one about seven years ago and another time about six years later, seven grains of caffeine. I tried it in a period when I was not

taking coffee, to see the effect from a scientific point of view.

Q. Yes, now how many grains of caffeine did you take at the time and about what time was it taken?

A. I took seven grains; I took it once in the evening and took it another time in the morning.

Q. Did you take seven grains each time?

A. Yes, sir; approximately, I took half a gram, that is probably seven grains.

Q. Now, what was the effect on you, Doctor?

A. Well, the effect was similar in both cases. It produced a good deal of excitement and sort of choking sensation, or pressure, palipation, restlessness, sleeplessness, in fact, complete sleeplessness, the first night, as I remember, in both cases, and the other night, still disturbed, so that the action seemed to go over several days, didn't cease the first day. If I remember, that is all—no, there were confusions of thought and ideas and considerable anguish, mental anguish.

Q. What do you mean by "palpitation" when you use that word?

A. Feeling of the heart beat, a sensative feeling, heart beating rapidly.

Q. More rapidly than normal?

A. Yes.

Q. And what is the effect of increased stimulation above normal upon the heart where it is required to beat faster than it would otherwise under normal conditions?

A. Fatigue follows.

Q. What is the effect on the human health?

A. You say would that effect the human being?

Q. No; what is the effect on the human health?

A. Deleterious, and of course chronic symptoms of the heart are likely to produce changes and enlargement of the heart, and changes in the blood vessels, in the arteriosclerosis type, irritation of the vessels.

Q. State whether or not you observed the effects of caffeine on other persons.

A. Not of pure caffeine, but of coffee.

Q. Now these two experiments that you tried on yourself, going over a period of six years, state whether or not that was caffeine itself.

A. Yes, sir; pure caffeine, not the citrate.

Q. That you use in the experimental work?

A. Yes, sir: chemically pure.

Q. What have been the results of your observations on other people who took caffeine as contained in coffee, as to its effects on humanity. State whether or not, they

were like those observed on yourself, differing only in degree.

A. Yes, precisely, the only difference being in degree.

Q. Have you or not experimented with it on animals?

A. Yes, sir.

Q. What was the character of the caffeine that you used there, was in combination with other substances that are found in coffee, or was it chemically free caffeine?

A. It was caffeine itself.

Q. On what kind of animal did you experiment?

A. On frogs, chiefly—rabbits, all I did was to try to get the rigor mortis from pieces of rabbit muscles.

Q. What do you mean by rigor mortis?

A. Rigor mortis is the coagulation of the muscle tissue which occurs at death, due to the formation of various acids, but caffeine produces something analgous to it, whether identical or not, I do not know. I have given caffeine to rabbits, but I don't remember the doses or any details about it; this was simply in teaching students.

Q. Speaking from your experimentation on yourself, your experiments and observations on other persons who were consumers of caffeine, your experimentation on animals and your reading on the subject, state whether or not on the whole the consumption of from one to one and a quarter grains per day of caffeine would have any effect on the human health, taken indiscriminately by the young and the old, and in connection, say with six or seven ounces of carbonated water, and if so, what that effect would be.

Mr. Sizer: I submit he has testified what the effects of caffeine would be. The question is not competent to try to draw out of him what the effect would be again.

The Court: This is, as I understand, putting a specific hypothetical question. Just read the question. (Thereupon the question was read as follows:

"Q. Speaking from your experimentation on yourself, your experiments and observations on other persons who were consumers of caffeine, your experimentation on animals and your reading on the subject, state whether or not on the whole the consumption of from one to one and a quarter grains per day of caffeine would have any effect on the human health, taken indiscriminately by the young and old, and in connection, say with six or seven ounces of carbonated water, and if so, what the effect would be.").

Mr. Sizer: He says taken indiscriminately by the young and the old. If he wants to ask him what effect it would have upon the health generally, he may do so, but not put it in that way.

Mr. Miller: I will try to conform to counsel's suggestion.

Mr. Miller: I will adopt that phraseology, and ask you what effect it would have on the health generally.

The Witness: It would have a deleterious effect which might or might not be demonstrable —

Mr. Sizer: (Interrupting). I object to that answer. He was asked as the effect it would have. He may state the effect without expressing his opinion—that is a conclusion to be drawn by the Court and jury. He may state the symptoms that would result, but it is not for him to decide whether it is deleterious or not.

Mr. Miller: He is a practitioner of ten years standing.

Mr. Sizer: Well, the question of whether or not it is deleterious, is a question for the jury.

Mr. Miller: I didn't ask for the witness to give that.

The Court: Without stating what the effect would be, whether it would be deleterious or otherwise, let his state what effect it would have in his opinion; that portion of the answer as to whether it is deleterious is excluded.

The Witness: In a majority of individuals who are suffering from a certain amount of nervousness, the effect which is very excessive, in cities, crowded cities where insufficient air and insufficient exercise is obtained, would have an increase in their nerous system, would have increased irritability, sleeplessness, if present, or not refreshing sleep, we might have disturbances of the digestion; those are some that occur to me at the present—and we would probably have, as we have a great many tonic substances, changes leading to premature old age, that in changes in the vascular system.

Q. What do you mean by toxic symptoms?

A. Toxics, poisons.

Mr. Sizer: (Interrupting). I object to that, he is getting back to the same proposition that I objected to a while ago, he may state what the symptoms are but not what the result is.

Mr. Miller: Toxic is not a word that is ordinarily used by the common laity.

Mr. Sizer: He explained what he means would be poisonous symptoms.

The Court: Well?

Mr. Sizer: Let him state what the symptoms are.

Mr. Miller: He has done that.

Mr. Sizer: You say he has already stated the symptoms and he now merely proceeds to characterize them as toxics, and that part of the answer be stricken out.

Mr. Miller: He is better qualified to speak than the av-

erage man as to what is a toxic symptom.

The Court: The word "toxic" is a medical term and I think that you may ask if the witness used it in a medical sense, and if so I think he can express his opinion of the use of the word, whether he used it in a technical or non-technical sense.

Mr. Sizer: We desire to note an exception.

BY MR. MILLER:

Q. Is the word "toxic" a medical term as used by medical text writers generally to express a particular condition, and if so, what is the condition that is meant by the word "toxic" as used by the medical writers and as you have used it?

A. Toxic symptoms mean poisonous symptoms as expressed by medical writers; it means symptoms foreign to the normal physiological functions.

Q. State whether or not as a part of your course of study you were required to study and take a course in botany and whether or not you have been compelled to refer to the study of botany more or less since the beginning of your professional career.

A. Yes, I have studied botany to a certain extent, but not extensively.

Q. Are you sufficiently acquainted with it to state who are the recognized standard authorities on botany?

A. Yes.

Q. Who are they?

A. I have used a certain amount of botany in my teaching, the Doctor Cramer of Philadelphia and Doctor Rusby, are the best authorities.

Q. That is the Doctor Rusby who has been present here as a witness?

A. Yes, sir; Doctor H. H. Rusby, I think.

Q. State whether or not they are generally recognized as authorities throughout the country on that subject.

A. Oh, yes.

Q. As respects organic changes in the brain that might be discernable in the case of caffeine habitues who might be suddenly killed and the brain undergo microscoptic examination, I will ask you to state whether or not it is reasonably probable that any organic changes would be noted by an investigation of the brain under those conditions, and if not, why not.

A. No, sir; I don't think with the present knowledge or with our present methods we can decern very fine changes in the nervous system; in fact, most insanity, especially general paresis—general paralsys, and senile

insanity, arteriosclerosis of the brain,—with the exception of those two and the diseases—that is, brain lesions coming in infants, except those two—I think it has been impossible, for the authors do not agree on the demonstration of any changes in the brain tissue.

Q. Are there, or are there not various other forms of insanity which require persons to be confined?

A. Oh, yes; chronic melancholias and chronic manias, paranoaics. They are, of course, very serious diseases and frequently incurable and require confinement; yet, as far as I know from my reading, I have not found that they showed brain lesions, or in talking with neurologists.

Q. State whether insanity is a disease of the brain.

A. Yes; decidedly.

Q. Are you prepared to speak as to the relative tolerance of man, and the lower species of animal life as to caffeine, or have you made any experiments or investigations along that line, and if so, tell us relatively what it is, pound for pound of body weight.

A. I have made no laboratory experiments, but from reading I have determined that it was about one to forty; that is, caffeine was forty times, about forty times more toxic, more poisonous to man than it was to rabbits; I think the ratio in frogs would be about that as compared to man. That is, taking the fatal cases of man—taking the fatal doses in man, the cases that occur in the literature and also the fatal results on rabbits.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, you have given so far as you know or can state all the symptoms that result from the use of caeffine by man?

A. No, sir: I don't say so; I may have omitted some.

Q. Well, I say you have given all that you recall?

A. Yes, at the time.

Q. And those are what you call toxic symptoms?

A. They are some what I call toxic symptoms.

Q. Those are toxic symptoms which you referred to a while ago when you said toxic symptoms resulted from the use of caffeine?

A. Yes, sir.

Q. Now, Doctor, the most toxic symptoms or the strongest toxic symptoms you ever observed in any one from the use of caffeine, were those you observed in yourself when you took those seven grains at one time?

A. No, not necessarily; they were the most acute toxic

symptoms. I have observed more serious chronic symptoms in patients.

Q. You say they were the most acute in your case?

A. Yes, sir.

Q. And you took seven grains in one dose?

A. Yes, sir.

Q. And that is equivalent to about four strong cups of coffee taken one right after the other?

A. Well, let me see—you count one cup of coffee as containing only two deci— grams, —yes, just about four or five.

Q. How long did it take you to recover from the effect of those seven grains of caffeine?

A. It took me about—oh, four or five days, possibly.

Q. Four or five days.

A. Yes, sir.

Q. So as far as you can tell us at the end of four or five days there were no injurious effects observed or any symptoms from those doses of caffeine?

A. In so far as I could tell. Of course I don't know what effect it might have had on my metabolism.

Q. I want to ask you from your knowledge, don't testify about something you don't know, —so far as your knowledge goes?

A. Well, —

Q. At the end of four or five days the symptoms had disappeared?

A. The obvious symptoms.

Q. What kind of symptoms are there that are not obvious?

A. I should say obvious effects.

Q. I am asking you about the symptoms.

A. The symptoms had disappeared; yes, sir.

Q. In addition to these two experiments on yourself I believe you say you derive your information as to the effect of caffeine from the literature and from what you have observed in others?

A. Yes, from the literature, animal experimentation and from what I have observed in others.

Q. And the animal experimentation that you have conducted was on frogs, was it not?

A. Yes, sir.

Q. By injecting the caffeine in its pure chemical state into their veins?

A. No, into the ventral lymph sacs, and also into the muscles direct.

Q. Into the bare muscle?

A. Yes, sir.

Q. How much caffeine did it take to kill a frog, or the frog, that you experimented on when you injected it into the ventral lymph sac?

A. I don't remember precisely, —I think it was —

Q. (Interrupting) Did it take as much as seven grains?

A. No, sir; much less. I don't remember. I did no distinct reported research. It was experiments I made for students or with students.

Q. You say that caffeine will produce coagulation of the muscles?

A. Yes, sir.

Q. But it will not do that unless it is applied directly to the muscle, will it?

A. Yes, sir; it will do that if injected into the artery going to the muscle.

Q. Well, into the vein?

A. No, into the artery.

Q. And unless it is injected directly into the artery which carries blood to the muscle, the use of caffeine will not result in any coagulation of the muscle?

A. It will in frogs.

Q. Will it in human beings?

A. I don't know that it has ever been tried in human beings.

Q. You never tried it in human beings?

A. No, sir.

Q. You gave a deposition in this case some time ago?

A. Yes, sir.

Q. And in that deposition you were asked this question and didn't you make this answer:

"Q. Doctor, these experiments with caffeine to determine its coagulating effect on the muscular tissue. Must not the caffeine be brought into contact with the muscles, that is the skin taken away from the muscles, or will the action occur on the muscle when the caffeine is administered by mouth?

"A. No, it has to be applied directly."

A. Yes, sir; I meant in warmblooded animals; I did not mean in frogs.

Q. You are testifying in that deposition about experiments conducted on frogs?

A. Yes, sir, about a whole lot of things.

Q. Did you testify about experiments conducted on frogs with caffeine?

A. Well —

Q. (Interrupting). Did you say anything about conducting experiments with caffeine on other animals?

A. I don't remember.

Q. Well, didn't you state at the time that you had not conducted any experiments on any animals except frogs?

A. I don't remember that.

Q. Don't you remember now whether you ever conducted any experiments on any other animals?

A. Yes, sir; of course I have.

Q. Did you?

A. Yes, sir.

Q. Well, during that examination —

A. (Interrupting) During my course, practically every year I have injected caffeine into other animals, in to the rabbits, and experimented with rabbit tissue, muscular tissue in rabbits, but no research; I never did any research.

Q. In conducting these experiments on warmblooded animals, also on frogs, you were asked the question whether or not coagulation of the muscles would result in those cases directly to the muscles and you said it would not, didn't you?

A. I said that means warmblooded animals.

Q. Warmblooded animals?

A. Yes, sir.

Q. Well, you had been conducting experiments on frogs and had testified, when you were asked with reference to those experiments, you stated it would not produce those results unless applied directly to the muscle.

A. Well, that is only a minor question.

Q. I didn't ask you that.

A. If you inject into the artery of lymph sac it causes coagulation either way.

Q. But I asking your attention to what you testified there, and ask you if it was not the truth, was that the fact as you stated in that deposition? I say, was that a truthful and correct answer to that questiion?

A. I would like to have it repeated.

Q. All right. I will read it to you. (Reading).

"Q. Doctor, these experiments with caffeine to determine its coagulating effect on the muscular tissue. Must not the caffeine be brought into contact with the muscles, that is the skin taken away from the muscles, or will the action occur on the muscle when the caffeine is administered by mouth?"

"A. No, it has to be applied directly."

A. That question was in relation to its administration by mouth; I do not say that it would be produced in administration by mouth, I stated it had to be injected into the ventral lymphs sacs.

Q. Well, it that a correct answer or not?

A. Will you read it again please?

Q. All right, I will read it to you again. (Reading).

"Q. Doctor, these experiments with caffeine to determine its coagulating effect on the muscular tissue. Must not the caffeine be bought into contact with the muscles, that is the skin taken away from the muscles, or will the action occur on the muscle when the caffeine is administered by mouth?"

"A. No, it has to be applied directly."

A. No, that is not a correct answer; it ought to be modified, that has to be modified.

Q. How ought that to be modified?

A. That only in frogs will you obtain coagulation of the muscle when the caffeine is injected into the ventral lymph sac, but inwarmblooded animals it has to be applied directly to the muscles themselves or in the artery going to them.

Q. Well, man is a warmblooded animal?

A. Yes, sir.

Q. You could not produce coagulation in man by introducing caffeine in any amount in the mouth?

A. No, sir; absolutely not. You would kill man by paralysis of the heart and respiration long before that.

Q. You never knew a man to be killed by paralysis of the heart and respiration from the administration of caffeine through the mouth?

A. No, sir; not from personal experience.

Q. Have you ever heard of any case of that kind?

A. Yes, sir; from medical literature.

Q. What case do you know of in medical literature where paralysis was produced by the administration of caffeine through the mouth?

A. I knew of a case in Zenetz, who was quoted by Lemaine, of a young woman, unwell, who thought of taking caffeine at the time for some purpose of her own, and she took one-tenth of a gram—I think repeated it a number of times, repeated it eight or ten times, and she died suddenly with symptoms of heart failure.

Q. Now, that is the case testified to here the other day?

A. Yes, sir.

Q. From Zenetz?

A. Yes, sir.

Q. Now, when you were asked about that on your examination in Boston —

A. (Interrupting). I told you at the time I had read of a case but I didn't remember the author.

Q. You stated that you had read about a case but could not state and were unable to state anything about it?

A. Yes, sir.

Q. Is that the same case?

A. I don't know.

Q. You have not found out anything more about that case?

A. No, sir; that Boston case was another one.

Q. The Zenetz case is the only one you have read about?

A. No, sir; a number of others, Lemaine states four or five others.

Q. That was also testified about here the other day?

A. Yes, sir.

Q. When did you read about those cases, since you came here to testify?

A. Yes, sir.

Q. The books were furnished to you by Doctor Kebler or adverse counsel?

A. At my request, yes.

Q. You never had seen those cases during all of your research and learning and investigation until you came here to testify?

A. I had not made any specific investigation, any research upon caffeine, so that my reading of literature was general and therefore I had not looked up all the cases which occurred. It is absolutely impossible for a pharmacologist to look up every case that occurs anywhere in the literature of any drug. We simply have to take what we get from reading certain numbers of medical journals or pharmacological journals, and then when we do special research on the subject then we go and take all the literature and look up all the cases. I have never had the opportunity to do so and I was absolutely unprepared for this trial. I simply came on and had to get my information from the published information.

Q. Your attention, Doctor, was called to that identical point when your deposition was taken in Boston some six months ago?

A. Yes, I told you then what I knew.

Q. And you knew then that you were coming down here as a witness?

A. No, sir; I did not. I did not know I was coming down here as a witness earlier than two hours before I started. I had a slight inference of it but I certainly would not prepare myself on inference.

Q. You had a slight inference and therefore did not prepare yourself?

A. No, sir; as it was not definitely settled.

Q. How was that?

A. It was not definitely settled until within two or three hours of my catching the train.

Q. And although your attention had been called to that particular subject, you didn't take interest enought in the subject to find out whether there was a case of that kind?

A. No, sir. I was busy with other things. I believed that I was through with the testimony at the time I gave my deposition.

Q. In what way have experiments been conducted on rabbits to ascertain that the toxic effect of caffeine is forty times greater on man than it is on a rabbit?

A. Experiments have been made by feeding caffeine per mouth and also injecting it subcutaneously, and the toxic dose—let me look it up from my notes, if I may! I will tell you what the toxic dosees are. Now, Doctor Salant in —

Q. (Interrupting). I am not asking you to reiterate somebody's statement.

A. I made no experiments.

Q. Yes.

A. Except what I obtained from literature which is, of course, our right as scientific investigators to take the literature.

Q. And the literature leads you to the conclusion as an expert that the toxic effect of caffeine is forty times greater in man than in rabbit, that is in your conclusion, is it?

A. Yes, sir.

Q. What is the toxic dose according to the same information you have, in the rabbit?

A. A toxic dose is two and a quarter grains per pound in the rabbit.

Q. Two and a quarter grains per pound?

A. Yes, sir.

Q. And you mean by that a dose will produce what you have referred to in your testimony heretofore as toxic symptoms?

A. No, sir, It will produce death.

Q. Will produce death?

A. Yes, sir.

Q. How much would that amount to, taking it two and a half grains per pound—what would that amount to in the average rabbit?

A. To the average rabbit?

Q. Yes, say four or five pounds.

A. Four or five pounds, it would amount to about nine grains.

The Court: That is the lethal dose?

The Witness: Yes, sir.

BY MR. SIZER:

Q. Nine grains of caffeine to a rabbit?

A. Yes, sir.

Q. How would that be given, by mouth or injection?

A. That was given by mouth?

Q. What was the fatal dose given by injection?

A. By injection?

Q. Yes.

A. One-tenth of a gram per kilo, about one grain per pound.

Q. Given by injection, about one grain per pound?

A. About that, approximately.

Q. And that would be about how much for the entire rabbit?

A. About four grains.

Q. For the entire injection into the vein?

A. Yes, sir.

Q. And nobody has made any experiments on the human being to ascertain what the fatal dose of caffeine or the lethal dose of caffeine would be?

A. No, sir; but our information comes from fatal cases by caffeine —

Q. (Interrupting). Your information comes of those cases reported by Zenetz and Lemaine and those other authorities which you have read since you came here.

A. Yes, sir; and Allard.

Q. That case from Allard, that is not a case of death from caffeine?

A. Yes, sir; I believe it is. It is so stated in Sollman's book.

Q. Isn't it a fact that that was a case of death resulting from theocin?

A. I believe not.

Q. Do you know?

A. Yes, sir;

Q. You know that it was not a case resulting from theocin, but that it was a case of death resulting from caffeine?

A. I have read it carefully; he stated the man died from six-tenths of a grain of caffeine.

Q. Well, isn't it a fact that that man had Bright's disease?

A. I don't know.

Q. Do the reports show that that man had Bright's disease?

A. I don't remember.

Q. You don't remember?
A. No, sir.
Q. And the Zenetz case?
A. Yes, sir. That is another case you can take.
Q. You don't know about that case?
A. No, sir.
Q. Whether the man in the Allard case had Bright's disease or not?
A. In the Allard case?
Q. Yes.
A. No, I do not.
Q. Now, these rabbits as to which you have testified as to the lethal dose—if these rabbits had been suffering with pneumonia or diptheria or anything of that kind, would that have had any effect on the amount of caffeine that it would take to kill them?
A. Yes, it would possibly.
Q. Well, it would not take much caffeine to kill them under those circumstances?
A. Well, in a laboratory people as a rule use normal rabbits.
Q. I am not asking you what they do as a rule.
A. All pharmacologists do.
Q. But I asked if the rabbit had been suffering with any of those diseases a much less dose of caffeine would be fatal than if in good health?
A. Not if the rabbit had been suffering, but if it was suffering.
Q. I mean at the time, if the rabbit was suffering.
A. Yes, I presume so.
Q. Isn't it a fact, Doctor, that cases are known in literature in which human beings have recovered from a dose of as much as 100 grains of caffeine?
A. I don't know that is the case; I have not read that case.
Q. You never read of that kind of a case?
A. No, sir.
Q. Where 100 grains of caffeine had been administered to a human being and he had recovered?
A. Let me see—I have read of a case, I think of Cushman where he had taken a dram, of the citrate of caffeine, I think that is it, a dram,—took sixty grains, if I am right. I don't know much about the English system —
Q. (Interrupting). But you do remember of one case?
Mr. Miller: Was that citrate of caffeine?
The Witness: Yes, sir.

BY MR. SIZER:

Q. And that contained about sixty grains of caffeine?

A. No, sir; half of that, thirty grains.

Q. Thirty grains?

A. Yes, sir.

Q. And you don't remember that case where a man took 100 grains of caffeine and recovered?

A. No, I never saw that case.

Q. In this case you refer to from Zenetz, does the report state how long it was after she took the last dose of caffeine before she died?

A. Yes, I think in a very short time.

Q. Well, do you recall that the report states the length of time?

A. I think so, I can't remember.

Q. You can't remember?

A. No, sir; I believe it says in a very short time. It was taken through a day, say one-tenth every two hours and at the end of the last dose she died suddenly.

Q. She died suddenly after the last dose?

A. Yes, sir.

Q. How long?

A. She had shown toxic symptoms before

Q. How long, I say.

A. I don't remember.

Q. The report does not show it?

A. I think it does; I think it shows shortly after, I don't remember the details.

Q. Quite suddenly?

A. Yes, sir.

Q. What symptoms had she developed betwen the taking, of the first and last dose, according to the report?

A. She had displayed symptoms of excitation, and I believe syncope.

Q. Of syncope?

A. Yes, sir.

Mr. Miller: What do you mean by that?

The Witness: That means sort of a faint or weakness, a symptom of weakness, heart weakness.

BY MR. SIZER:

Q. Was there anything in that report to show whether that patient was a perfectly well woman before she commenced to take those doses of caffeine?

A. Yes, sir; there was. The author stated that she was absolutely free from any organic lesion.

Q. No organic lesion?

A. Yes, sir.

Q. That does not indicate necessarily that she was not suffering from some other kind of disease, does it, organic lesion is not the only kind?

A. What kind of disease do you mean?

Q. Well, any kind. Does the report show she was absolutely free from any disease?

A. Yes, sir; I think it does.

Q. Does it, Doctor, mean, — does the report show ——

A. (Interrupting). He said she was a normal woman, free from all organic lesion.

Q. Free from organic lesion?

A. Yes.

Q. Well, the words, "Organic lesion" do not exclude the possibility of her having been suffering from some disease?

A. From having insanity, of course not; she might have insanity, — but still, if she had insanity, it is reasonable to suppose that it would have been stated.

Q. Well, she might have had various functional derangements, might she?

A. Yes, sir.

Q. Yes.

A. Yes, sir; but no functional derangement would have any effect on the toxicity of the caffeine. It would not have any effect on the toxicity of the caffeine.

Q. Does not that report show she was suffering from some ailment?

A. No, she was unwell.

Q. Unwell?

A. Yes, sir.

Q. Well, that shows she was.

A. No, sir; that is a normal condition.

Q. It is the normal condition of people to be unwell?

A. Yes, to have menstruation.

Q. And this woman was therefore unwell?

A. Yes, sir.

Q. Does the report show that she had any other sickness?

A. Not that I remember of.

Q. Now, she took about how much caffeine before she died, in these doses that you have stated?

A. She took citrate — three grams, that makes one and a half — twenty-two grains, I believe, approximately.

Q. Within what period of time?

A. Two hours apart, I think it is stated.

Q. Does not that report show this about that case, that the woman was sitting conversing quietly with her friends between the time she took the first dose and the

time she took the last dose, and that when she took the last dose she suddenly died?

A. She was not sitting quietly all the time, it was while she was sitting quietly conversing with her friends that she suddenly died, but she had not been all the time she had been sick.

Q. Well, is that a symptom of caffeine poisoning to be sitting quietly conversing with a friend and then suddenly drop off dead?

A. The dropping off dead is.

Q. Is that the manner in which you would expect a toxic dose of caffeine to act, a person sitting down quietly and talking to other people?

A. There are thousands of ways in which it may act. Not in any drug do we have the same symptoms in all cases; and the manner of action may vary a great deal, so we have a great many symptoms of different drugs in pharmacology and ways in which death occurs. It does not occur in only one way, sudden death is one way in which caffeine may produce death.

Q. Are those symptoms symptoms that would ordinarily follow from what you call a toxic dose of caffeine, — that is, the patient sitting down and quietly conversing until she dies,—ordinary symptoms following a toxic dose?

A. I don't think it would be the invariable way.

Q. I say, is that the ordinary way — are these the ordinary symptoms of a toxic dose of caffeine?

A. In dogs you obtain sudden death from paralysis of the heart just as apparently occurred in this case.

Q. Well, I am not talking about dogs, but to get back to that question, you say that the woman was sitting there quietly conversing with her friends up to the time she died, are those the ordinary symptoms, the way in which a person ordinarily acts?

A. It is not ordinary.

Q. It is not?

A. The sitting quietly and talking is not the ordinary way, no.

Q. Well, it is just exactly the opposite of the ordinary way in which a toxic dose of caffeine would manifest itself, is it?

A. No, I say they would vary; there are many, very many variations in how symptoms may occur, and it might be that at the last moment she had recovered sufficiently from the first dose in order to be able to talk with her friends, that I will admit is rather exceptional, but she had shown toxic symptoms before this; that she could talk with her friends was somewhat exceptional,

but still that certainly would not affect our belief of that the caffeine was responsible for the paralysis of the heart.

Q. No, if you want to believe it.

A. Even though we do not want to believe it, we have to, you would be forced to do it.

Q. Well, the symptoms that she displayed immediately preceding her death were not symptoms that ordinarily follow from the taking of caffeine in toxic doses, that is true is it not?

A. Not always follow ——

Q. Is it a fact they do not ordinarily follow?

A. No, I should say not always.

Q. Are they such as would ordinarily follow—just answer that, please.

A. No.

Q. Now, Doctor, I want to ask you if you are familiar with some medical works that I am going to refer to, on pharmacology and Materia Medica. I refer you to Bartholemew on Materia Medica and Therapeutics.

A. I have seen it.

Q. Is that a standard authority?

A. Not now, it is an old book; that used to be the standard years ago, but pharmacologies have changed a great deal since.

Q. Well, the last edition was published in 1900, was it?

A. I don't remember, I saw it ten or fifteen years ago.

Q. Well, how about Butler's textbook on Materia Medica, therapeutics and pharmacology, is that a standard authority?

A. I know very little about that, I have never used it.

Q. How about Bunge's Physiologic and Pathologic Chemistry, is that a good authority?

A. Bunge himself is a good experimenter, his writings are erratic.

Q. He is a good man, but he does not write a good book?

A. He has written poor articles, too.

Q. So you don't consider that a good authority, then?

A. No, sir.

Q. How about Sollman's textbooks of pharmacology, including therapeutics, Materia Medica, etc., is that a standard work?

A. Yes, sir.

Q. How about Pavy on Food and Dietetics?

A. Pavy?

Q. Yes.

A. I don't know, I am not prepared to pass on it.

Q. You don't know that?

A. No, sir.

Q. Well, Hutchinson on Food and Dietetics, is that a good authority?

A. Yes, a fairly good book.

Q. Lusk on the Science of Nutrition?

A. I have not read that.

Q. You don't know about that?

A. No, sir.

Q. And the only ones you are prepared to recommend are Sollman and Hutchinson?

A. I didn't say I was prepared to recommend them.

Q. Do you say they are standard authorities or not?

A. Yes, sir.

Q. Both standard authorities?

A. Yes, sir. Both known authorities.

Q. Now, isn't it a fact, Doctor, that caffeine as taken in ordinary beverages is rapidly eliminated from the system?

A. Is rapidly eliminated?

Q. Yes.

A. No, I should not agree with that.

Q. You could not agree with that?

A. No, sir.

Q. Do you know how long it takes for the effects of caffeine contained in the ordinary cup of coffee to pass out of the system?

A. There is no method to determine the position the caffeine is left in, in association with the nerve cells — judging from physiological effects.

Q. I am not asking you that — the effect passes off in a few hours, doesn't it?

A. Not always. A cup of coffee taken in the morning may show sleeplessness at night in susceptible individuals.

Q. That would be a very exceptional case?

A. No, sir; I know quite a number of patients thus affected; I am myself and other members of my household.

Q. Take a cup of coffee in the morning —

A. Yes, sir.

Q. And be affected at night?

A. Yes, sir.

Q. How many cases of that kind do you know?

A. Probably half a dozen.

Q. Those are exceptional cases?

A. Yes, sir; they are exceptional in that they act over such a long time.

Q. As a rule is it true that the effect of a cup of coffee will pass away in a few hours?

A. The immediate effect.

BY A JUROR:

Q. What is your name?

A. Tyrode — T-y-r-o-d-e.

BY MR. SIZER:

Q. Doctor, you referred in your examination in chief to what you call reserve energy, that simply means that a man may have stored up in his body energy, and it is continually being drawn on every time a man does anything?

A. Yes, sir; continually being reformed if proper rest is given to the organism.

Q. And in order to draw on energy or induce action, there has to be stimulation?

A. Stimulation, — what do you mean by that?

Q. What is stimulation? I will ask you that, then.

A. Stimulation is a very broad term.

Q. Stimulation?

A. Yes, it means the irritation, the external irritation which may come to living beings producing a response by giving up of energy or force, or whatever it may be — externally.

Q. Now, didn't you testify in a deposition you gave in this case in Boston that all life was stimulation, that everything around us was sort of stimulation, did you say that?

A. Yes, sir; light, electricity, heat, cold, dust, wind.

The Court: That is, defining it in the sense in which it is used in the question ——

Mr. Sizer: I wanted to know what the witness meant by stimulation.

The Court: Well, ask him what he means.

BY MR. SIZER:

Q. If the stimulation is not too great, or is not so great as to require a man or an animal to do more than the normal capacity, then that is not injurious?

A. It depends on the character of the stimulation, whether normal or abnormal.

Q. Well, just to get my point, I will illustrate to you. We will take a horse, suppose a horse is standing on one side of a field ——

A. Yes, sir.

Q. And he sees something on the other side that attracts his attention, and he gallops toward it at a rather fast rate, he has exhausted energy?

A. Yes, sir; or he may or may not, it depends on the strength of the horse.

Q. He has used up some energy?

A. Yes, sir.
Q. In making that trip?
A. Yes, sir.
Q. And the object that he saw was the stimulation that induced him to put out the energy?
Q. Suppose now instead of seeing the object across the field, you hit the horse with a whip and he gallops at exactly the same rate and goes the same distance, he has exhausted the same amount of energy?
The Court: Those are perfectly obvious matters.
Mr. Sizer: I wanted to illustrate.

BY MR. SIZER:

Q. The exhaustion of energy is not always a disadvantage to a man, provided the reserve that is exhausted is supplied by the taking in of food and taking his needed rest?
A. Provided all the reserve is not exhausted and provided means are given for the restoration of the proper reserve.
Q. The exhaustion of reserve is a normal function of the organ, is it?
A. No, sir; not at all. Oh, no. We never normally exhaust our reserve, we do not come anywhere near it.
Q. I used perhaps the wrong word, the expenditure of energy is the normal function of the body.
A. No, sir; it is only the occasional one — we normally use the normal amount of energy which is formed from our food stuffs, but only in extreme instances, occasions of great strain — then we may call upon the reserve but the reserve is a reserve and is not for ordinary use.
Q. You are expending the reserve when you talk?
A. No.
Q. What are you expending?
A. Energy.
Q. That is energy stored up in your body?
A. Yes, sir.
Q. Is that the reserve?
A. It is the reserve in a certain sense but not the way you mean ——
Q. It is the energy stored in the body that you expend?
A. Yes, sir.
Q. And you expend it constantly?
A. Yes, sir.
Q. And if that energy is replaced by the taking of proper food and of proper rest, then no harm is done?
A. No, provided we leave proper balances behind — provided there is always a balance.

Q. Now, Doctor, in order to determine that a particular case of death results from a particular cause, you have to exclude the hypothesis of any other cause that may have produced it?

A. Yes.

Q. And in Zenetz' case that you referred to awhile ago, isn't it true that is not done so far as the report shows?

A. No, sir; it is not so — in the Zenetz case the autopsy showed normal conditions.

Q. It showed, you said, the woman was unwell.

A. She was having her normal periods and anything that is normal is not a disease — pregnacy is not a disease, neither is menstruation.

Q. It was not the condition in which she generally existed?

A. Yes, that is the condition in which a woman generally is at that time.

Q. Do you know whether her brain was diseased in any way?

A. No.

Q. Do you know whether she had any other physical ailment?

A. I have the statement of Zenetz who says she had no other organic lesion. I did not see the case myself nor did I examine it personally.

Q. For all you know and all that report shows, she might have died from apoplexy?

A. No, sir.

Q. How do you know?

A. I have Zenetz' word for it. We all have to rely on these authorities; if not, the work would be of no use.

Q. Well, Zenetz simply says she died suddenly after having taken the caffeine.

Mr. Miller: (Interrupting.) He has gone into it repeatedly. We have the article here ——

The Court: Yes.

BY MR. SIZER:

Q. Was there any postmortem examination made of that woman with respect to her heart?

A. You read the article.

Q. I am asking you.

A. I prefer to have it read.

The Court: Just state what you remember about it.

BY MR. SIZER:

Q. Was there any post mortem examination made of that woman?

A. I don't remember, sir.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Just a thought, Doctor, — this injection into the rabbits, or the frogs — I mean into the frogs, where the caffeine was used — did you mean that you injected pure caffeine or a dilution of caffeine in the water?

A. Dilution of caffeine — water, in solution.

Q. As to this Zenetz case, in that connection, you stated one reported by Allard. Where is he?

A. In Sollman's text book of Pharmacology.

Q. And what was the number of grains that killed in that case?

A. Six deci-grams.

The Court: And that is about what?

The Witness: Practically nine grains.

BY MR. MILLER:

Q. When you speak of so much per kilo, what does "kilo" mean, how many pounds?

A. A kilo means two pounds, approximately.

Q. Does the taking of food supply the result that follows the loss of sleep?

A. No, not by any means.

Q. Does the stimulation of coffee, — is the stimulation of the kidney or the over stimulation of it by the use of caffeine supplied by the taking of food?

A. No, sir.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. That Allard case — is it a fact that the report of that case shows that death resulted from theocine?

A. That is not my recollection; my recollection is it resulted from caffeine.

Q. Have you the case here?

A. No, sir.

Q. Have you any report of it?

A. No, sir.

Q. Are you simply testifying from your recollection of it?

A. Yes, sir.

(Witness excused.)

Thereupon, at 10:10 o'clock A. M., the Court adjourned until 9 o'clock A. M., Monday, March 20, A. D. 1911.

Chattanooga, Tennessee,
Monday, March 20, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.
Appearances, same as heretofore.

F. P. MORGAN

resumed the stand for further examination and testified as follows:

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. Referring to the rabbits, to the experiments on the rabbits in 1908, I will get you to state as to the internal condition of rabbits Nos. 6, 7, 8 and 5, as numbered by you, if you were present at the autopsies held.

A. The rabbits showed inflammation or congestion of the stomach or intestines, or both.

Q. As to these rabbits which were sent across the street to the Bureau of Animal Industry, state whether or not when they either died or were killed by chloroform they were at once dispatched to the Bureau of Animal Industry and were kept in that institution until sent over.

A. Yes, sir.

Q. You were asked to file a list showing the dates of the feeding, what these rabbits were fed as reported to you by Doctor Fuller.

A. Yes, sir.

Q. As made up and reported by Doctor Fuller.

A. Yes, sir.

Q. The number of the rabbit, the time that it left after the feeding began, by whom the post mortem was performed — I will get you to state if you have prepared that list.

A. Yes, sir.

Mr. Sizer: I don't know who asked him to file any statement to that effect, as to these rabbits, based on what somebody else said, or told him. I have been objecting to any witness stating what he was told by somebody else and I object to any statement prepared by Doctor Morgan showing the diet of these rabbits based on the statements made to him by Doctor Fuller.

Mr. Miller: That is proven by Doctor Fuller, that he made up certain ingredients or mixtures, and gave them to this witness with a statement of what they contained, and we proved by this witness on examination in chief before that he fed in proportion to the statement as given him by Doctor Fuller and kept a memorandum of his feeding — I am sure I did and I think adverse counsel concurred in it;

I know your Honor stated that we might file the list, have this witness do so instead of going into detail, detailing a full report, but to make a summary of the feedings of these various rabbits, together with the numbers, and that was to be filed as Exhibit A to his deposition. I think I am right about the letter; at any rate, as an exhibit, and he said that he would prepare such a summary.

Now, of course, only in so far as we produce the doctors who performed the post mortems, and only in so far as we have already shown by Doctor Fuller that he properly reported to this witness the substance or the proportions that were fed the rabbits, do we submit that it would be competent, and I asked no further, and tha was limited to three doctors, Eichorn, Formad and Gallagher.

Mr. Sizer: I submit, may it please your Honor, that he should strike out of that list or paper or whatever it is the matters he does not personally know about and let him file the information he knows about. As I recall, what your Honor said was this, that he could file a list of the rabbits with their numbers, and showing what disposition he made of these particular rabbits personally.

The Court: Yes, where he sent them to.

Mr. Miller: That is all we have done.

Mr. Sizer: They asked him to file reports showing what the rabbits had been fed on, based on Doctor Fuller's statement.

Mr. Miller: That was held to be competent because this witness said he fed exactly in the proportion that Doctor Fuller said he gave it to him.

The Court: I think it is competent to show that he fed the rabbits certain things that were reported to him as containing such and such ingredients, and then, of course, if the ingredients were what Doctor Fuller said was the composition, it would make it up.

Mr. Sizer: I submit this would be competent, that Doctor Morgan could show he fed these rabbits a certain composition that was given to him by Doctor Fuller; he does not personally know what it contains.

Mr. Miller: We concede that.

The Court: Yes; you may add on that if it does not show, that it was prepared by Doctor Fuller and purports to contain such and such—that is not evidence of the fact, but that he fed them the composition according to Doctor Fuller, what he had reported it to contain, otherwise you cannot identify it.

Mr. Sizer: He could identify it in this way — if Doctor Fuller says the composition turned over to Doctor Morgan

was so and so — that could be proven ——

The Court: He has done that.

Mr. Sizer: I submit if he has, it is a mere hearsay statement from Doctor Morgan's stating that this mixture purported to contain such ingredients, and it would be inadmissible.

The Court: Otherwise there is no way to determine that. If Doctor Fuller had labeled the ingredients 1, 2, 3, 4 and 5, that would be the better way, but apparently that was not done but simply that the ingredients purported to contain certain things, and that is all that he knows about it, and the only way he could identify it is that he said a certain compound containing certain things — you may insert the word "purported."

Gentlemen of the jury, this is not evidence of itself of the fact that any of these substances did contain these ingredients — that you will have to get from other witnesses, but merely evidence of the fact that certain compounds were given to him by Doctor Fuller as containing certain things and then you will have to look to Doctor Fuller's testimony and the other testimony to see really what those things were; this witness personally knows nothing about them except that he got them.

BY MR. MILLER:

Q. I will get you to state, if you have not already stated, whether or not, assuming Doctor Fuller's statement to be correct to you, as to the component parts of the mixtures that the exhibit which you have filed, shows the proportion of caffeine or Coca-Cola syrup, as the case may be, that you received.

A. Yes, sir; that is according to Mr. Fuller's statement.

Mr. Sizer: I object to that question and answer.

The Court: The exception is overruled.

Mr. Sizer: We except.

Mr. Miller: I will state for the benefit of counsel that we are unable to get Doctor Eichorn, that we have Doctor Gallagher and Doctor Formad, and in so far as Doctor Eichorn's findings are shown, we have not Doctor Eichorn but we will have Doctors Formad and Gallagher here, and we will exclude those of Doctor Eichorn or we will give them if desired, but we are unable to get Doctor Eichorn here.

The Court: That statement does not purport to show what they fed the rabbit.

Mr. Miller: No, but to whom they were despatched — the veterinaries themselves will show what they found.

Mr. Sizer: This exhibit simply shows on its face that a rabbit of a certain number was fed with a certain substance and giving the dates of the feeding, the length of time fed, the post mortem ——

Mr. Miller: (Interrupting) It does not show what the result was.

Mr. Sizer: It does undertake to set forth what rabbits were fed, and this witness does not know and we insist it is inadmissible to that extent.

The Court: It is admitted only to the extent that they were fed with that on the hypothesis that the statement of the contents of these mixtures given them by Doctor Fuller was correct, and it may be so modified on its face to that effect — any statement otherwise would not be competent.

Mr. Sizer: We desire to have the statement modified in accordance with your Honor's suggestion before it is offered in evidence.

The Court: That may be done and you may withdraw the statement and make that modification. It may be done later unless you desire to ask him further.

Mr. Miller: I do not.

The Court: The jury will definitely and distinctly understand the extent to which it is offered.

Mr. Miller: Will you oblige me with a copy and file it so that I may ask Doctor Formad about it?

The Court: What were those four rabbits that you enumerated, 5, 6, or 7, or whatever it was?

Mr. Miller: They were known as the Coca-Cola rabbits?

The Court: And what were they fed on?

Mr. Miller: Fed on 30 cc. of Coca-Cola.

The Court: All right.

Mr. Sizer: This list does not contain a statement of the diet of any rabbits Doctor Morgan testified about and does not contain a statement of any that were fed simple syrup.

Mr. Miller: I would be glad to have them added.

The Court: I didn't ask him to put the ingredients, I didn't ask him to put that on the list — I just asked him to put on the list the rabbits that were fed simple syrup so they could be identified.

Mr. Miller: We have a detailed statement of all these experiments which I have offered to file, and would be glad to do so.

The Court: I didn't ask him that — I asked him to file the number of rabbits fed on simple syrup ——

Mr. Miller: I will ask Doctor Formad to take the witness stand.

(Witness excused.)

DR. ROBERT J. FORMAD,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Formad, what is your age, please, sir?

A. I am forty-seven.

Q. What is your profession?

A. I am pathologist with the Bureau of Animal Industry, Department of Agriculture.

Q. Where were you educated, Doctor Formad?

A. I graduated in veterinary medicine in 1888 and in human medicine in 1894, University of Pennsylvania, Philadelphia.

Q. When you say you graduated in human medicine, what was the degree given you then, Doctor of Medicine?

A. Doctor of Medicine.

Q. Were you or not afterwards connected with the University of Pennsylvania in any professional capacity, and if so, what?

A. Prior to my graduation I was acting assistant in histology from 1886 to 1888, the year of my graduation. After my graduation I was appointed demonstrator of histology in the veterinary department and was assistant in histology in the medical department. I remained in that capacity as a teacher in practical normal histology and during the year 1890, or it might be 1898, I was appointed lecturer on sanitary science inspection. During the summer of 1892 I went abroad and studied in Germany, in Berlin and Stutgart, pathology and sanitary science as applied to animals, and during the fall of that year I received the appointment of demonstrator of pathological histology and morbid anatomy in the veterinary department of the University of Pennsylvania. These latter two positions I occupied for about seven years.

Q. What do you mean by histology? Explain to the jury.

A. Histology is the study of the normal structures of the entire body, comprising the composition or make-up of the skin, of the muscles, and every part of the body, including the brain and nervous system.

Q. What do you mean by morbid anatomy?

A. Morbid anatomy is the study of the disease changes which are seen by the naked eye in appearance, the so-called gross lesions distinguished by the unaided eye.

Q. Is there or not any aid or mechanism employed to aid the eye in detecting changes which the eye itself un-

aided by them is unable to detect?

A. Yes, sir; that is done by the study of pathological histology, the minute histology of the diseased tissues where the microscope is employed.

Q. The microscope?

A. Yes.

Q. Now state whether or not you took employment with the Bureau of Animal Industry, and if so, in what capacity and about when.

A. I was appointed as pathologist, or assistant, rather, in pathology in 1906.

Q. How long have you been connected with that Bureau and what is your present position?

A. I am at present assistant in pathology in the Bureau of Animal Industry.

Q. Have you been connected with the Bureau continuously since your employment?

A. Yes, sir.

Q. If you received any rabbits for the purpose of pathological examination, and if you made such examination, from the Department of Agriculture during the years 1910 and 1911 — I mean from the Bureau of Chemistry — if you received them from the Bureau of Chemistry during the years 1910 and 1911, and if they were numbered or tagged in any way, tell first the numbers of the rabbits that you received, tell if you made a pathological examination of them.

A. Yes, I did.

Q. Now, give first the numbers of the rabbits you received.

A. The animals had a tag in their ear, usually the left ear, bearing a certain number. Those animals were brought over by the attendant, and received by me personally.

Q. Can you give the numbers of those rabbits, that is the tag numbers?

A. Yes, sir; I have them: Numbers 36, 37, 38, 39, and 40, Number 45, Number 50, Numbers 47, 48, 49, Numbers 42, 44, and 46.

Q. Prior to this time and during the year 1908, did you receive any rabbits from this Bureau, and did you or not hold post-mortem examinations of such rabbits?

A. Dr. Morgan brought over two rabbits which I posted in his presence, and dictated the notes to Dr. Morgan.

Q. That was in 1898?

Q. That was in 1908?

A. 1908.

Q. Did you yourself personally keep any notes in re-

spect to those two rabbits?

A. No, sir; because I made the post-mortems and Dr. Morgan took the notes in his book.

Q. Did you or not report the conditions correctly as you found them?

A. Yes, sir.

Q. Now, these other rabbits that you received in 1910 and 1911, and the numbers of which you have given, state whether or not you made and retained notes of your findings as to these rabbits.

A. I retained a copy of the original memorandum when the post mortem examination was made.

Q. Did you know at that time what was the trouble — was the trouble — or what if anything the rabbits had been fed on out of the normal feeding?

A. No, sir, I did not because we receive rabbits not only from Dr. Morgan but from Dr. Salant and for other investigations and post mortems. I made memorandum notes, a copy of which was usually sent over to the respective experimenters.

Q. Now, when you would receive those rabbits, the numbers of which you have given, from the Bureau of Chemistry, what was the ordinary course with respect to holding the post mortems — that is how long after receipt of them was it before you would post them, as you term it, or make the examination of the interior?

A. The usual course was to make the examination inside of an hour or so. If the animal was sent alive to be chloroformed, then the animal was placed in the chloroform box and chloroformed, and the examination made fifteen minutes after the animal was killed.

Q. Will you make and file as Exhibit No. 1 to your testimony, a statement of the rabbits that you posted or made an internal pathological examination of in the year 1911 by numbers as you have given them?

A. Yes, sir.

Mr. Sizer: I object to his filing the statement. I submit that that statement would not be competent.

The Court: What was that to contain?

Mr. Miller: Only the numbers. If we wanted to compare them with those of Dr. Morgan, it would be much more intelligible and certainly save time.

The Court: I do not see any objection. You may ask for the list of numbers.

Mr. Sizer: If that is all, I do not object to it, but I understood he asked for a record of the work.

Mr. Sizer: No, I did not ask for that; I just asked for the numbers.

Mr. Sizer: Then I don't object to the list of numbers.
The Court: He can file the list of numbers.

BY MR. MILLER:

Q. Now, Dr. Formad, did you first study the conditions of these rabbits as developed by the post mortem examination, with the naked eye or with the microscope?

A. The usual procedure in examining the animal is to see the general condition of the body.

Q. With or without the aid of the microscope?

A. Without the aid of the microscope.

Q. What kind of examination do you call that?

A. It might be called a casual examination to see whether the animal shows any marks of violence, any characteristic lesions of any sort that could be determined before the animal is touched.

Q. Does or not such examination reveal the fact ordinarily, as to whether or not the animal was in a healthful condition before he was killed?

A. It gives us only an approximate idea of the state, whether the animal has been starved, or whether the animal is in a good state of nutrition. It is only for a comparative view.

Q. What did you observe as to the general pathological condition of these rabbits which you have testified about by number, and state whether or not they were all of the same general class, and if there were any marked differences in any respect, tell what they were and as to how many.

A. In numbers 47, 48 and 49, the general condition of the body was fair or good.

Q. How as to the remainder?

A. In the remainder — and here I would have to take up the case individually — but in general terms, I could state that there was emaciation, from very marked emaciation to slight, so that there was a difference in the general appearance of the animals from those first three.

Q. That is, there was a marked difference between the three, numbers 47, 48 and 49, and the remainder of the rabbits?

A. Yes, sir.

Q. Now, leaving out numbers 47, 48 and 49, what was this marked difference to which you refer?

A. I have reference only to the external appearance of the body, state of nutrition.

Q. Now, what when you got on the inside of the body, the internal appearance — what, if anything were the marked distinctions?

A. The lesions which characterized most of the remaining animals and which was varying in degree of intensity, ranged from a fulness of the blood vessels in the organs in which are the chief seat of elimination, or carrying-off of the waste products, and which are the kidney and the liver — in those two organs I found a distension of blood vessels varying to a degree of congestion.

Q. What do you mean by congestion in that connection?

A. Congestion means a state when the blood vessels have passed beyond the normal increase in the quantity of blood, when there is an intense accumulation due to abnormal functional activity of the organ.

Q. Abnormal functional activity of which organ?

A. That depends on which organ is observed, if it is congestion of the stomach, you find it in the stomach, and if it is in the intestines, and so on. You may have congestion of any part of the body, of the surface as well as of the internal organs.

Q. What function was that that you have reference to in this case — what produced the congestion in this case, if you know or are prepared to state.

Mr. Sizer: I object to that. I would like to have the question divided. The first part is not objectionable, but the second part would be, unless he has stated that he knows definitely what did produce the congestion.

The Court: Was there anything in the appearance that would qualify, you, from your scientific investigations, to determine what caused the congestion — are you prepared to give an opinion as an expert on that subject?

The Witness: Yes, sir.

The Court: The exception is overruled. I think the objection to the double question is one for the witness to make, and I think he can answer from a scientific point of view.

BY MR. MILLER:

Q. Explain that.

A. A congestion in any organ is brought about by abnormal functional activity. We will find, usually, irritants are capable of producing such a lesion or such a condition.

Q. In this case, where you found an abnormal condition of the stomach, as I understand, by what might that have been produced?

A. At the time I examined the stomach, I had no idea what the animal was fed on or what its diet consisted of, and I could not form any opinion as to what brought it about, further than irritant or irritating substance was

injected by the animal which brought about the condition.

Q. What did you say was the condition of the stomach with respect to inflammation?

A. There was a distinct fulness of the blood vessels, and in some of the intestines, varying to a congestion. There were differences. In some, it was less marked and in others it was more marked.

Q. What was the condition of the walls of the stomach?

A. The inner lining, which is known as the mucous membrane, and which is the part which comes in contact with the food or anything that has to be digested by the animal, is richly supplied with blood vessels, and it is that part of the stomach which is the first to show any increase in the intensity of the blood flow.

Q. Now this, you say, was in a state of congestion?

A. Yes, sir; it was in a state of fullness in some of the cases and congestion in others.

Q. State whether or not the stomach or the lining of the stomachs were of the normal thicknesses.

A. In some of the cases there was little increase in thickening and what is known as induration, thickening.

Q. What was the condition of the intestines of these rabbits, barring the three, 47, 48 and 49?

The Court: What were 47, 48 and 49?

Mr. Miller: Those were the rabbits that were fed on the simple syrup, your Honor.

The Witness: In most of the cases there was a marked congestion in the upper part of the intestinal tract, especially the part following the stomach.

BY MR. MILLER:

Q. And by that you mean the small intestines?

A. The small intestines known as duodenum.

Q. What was the condition of the kidneys of these rabbits, leaving out the aforesaid numbers 47, 48 and 49?

A. In all of them there was a marked irritation, varying from a fullness in the vessels to a congestion.

Q. Were any of them in normal condition?

A. None of them were.

Q. What if anything did you find as to the livers of these rabbits?

A. Well ——

Q. (Interrupting) Leaving out the three always, when I refer generally I mean to leave out those three, 47, 48 and 49.

A. In all of these cases there was a congestion varying from slight to very marked — in some of the cases there were additional lesions, such as fatty conditions.

Q. Was this condition normal or abnormal?

A. It was abnormal.

Q. As to the average healthy rabbit?

A. Abnormal.

Q. What do you mean by a lesion?

A. A lesion is an appreciable sign, a change or alteration from the normal composition of a part or organ.

Q. Had you studied the interior of rabbits and held post mortems on them prior to the time of the holding of these, and were you holding post mortems on others during the same time?

A. During the entire period of my teaching, which began in 1886, I have upon animals collected tissues for microscopical examination.

Q. Including rabbits?

A. Including rabbits, dogs and other domestic animals; and at times I have made post mortem examinations on human subjects.

Q. Now, if you made any examination as to the brain of these rabbits, tell what you found there, leaving out the three aforesaid.

A. I have examined the brain and spinal cord in five cases.

Q. Give us those numbers, please.

A. 29, 36, 42, 44 and 46.

Q. Now, when you refer to numbers, state whether or not you mean the tag which the rabbit bore in its ear.

A. Yes, sir; the tag in the ear.

Q. What did you find as to the condition of the brain of these five rabbits that you examined especially?

A. The membranes covering the brain and particularly the innermost which is in direct contact with the brain and is known as pia matter, showed a distinct fullness of the blood vessels.

Q. How did you make that examination, microscopically or otherwise?

A. Macroscopically first and microscopically afterwards.

Q. What is macroscopically?

A. First by inspection of the naked eye, and secondly separation and staining of parts of the brain and examining them under a microscope.

Q. Are you acquainted with and do you understand the accepted standard methods for making the examinations to which you resorted?

A. Having acted in the capacity of lecturer and teached for a number of years,—nine years at the University of Pennsylvania and during the last two years as pro-

fessor at George Washington University, I feel competent in making examinations of these tissues.

Q. Explain what you found with respect to this outer coating of this surface and also this interior coating which you say you studied under the microscope.

A. The outer coating or dura matter did not show any appreciable changes; the inner or the pia matter in all instances, in these five cases, showed an extenuation of the blood vessels to the naked eye and a very marked distention under the microscope which was bordering on the line of congestion or intensified fullness of the blood vessels.

Q. What is the function of this inner covering that you say was distended?

A. It is a sort of protecting nutrient covering which dips in the folds of the brain and cord.

Q. And spinal cord?

A. Yes, sir.

Q. How, if at all, do the blood vessels come in contact with it or pass through it?

A. That membrane is made very largely of blood vessels and has a small supporting net work of fibrous tissues.

Q. And what does that supply?

A. It supplies or assists essentially in giving nutrition to the brain and spinal cord.

Q. Did you go any deeper into the matter of research and investigation with the aid of the microscope, and if so, what further did you discover with respect to the brain or brain cells?

A. In my particular examinations of the cellular constituents I found that there was not only a fullness in the blood vessels of the pia matter, or the covering, but also the capsular vessels creating the vessels of the cerebrum and spinal cord participated in that distension, but to a less degree.

Q. What do you mean by the cerebrum?

A. It is the large brain or the bigger portion of the brain. The brain consists of several parts and the cerebrum is called the large brain, and the cerebellum or small brain. As far as the changes in the cells and of the cells, we have essentially the ganglion cells. In those ganglion cells I found a diminution in the distenuable substance, which in technical terms is described as chromotolysi.

Q. What do you mean first by the ganglion cells?

A. They are the cells which produce the chief creation of the nerve impulse; the nerve fibers or the conducting wires holding the impulse are created or performed within the ganglion cells.

Q. What do you mean by this chromotolysi?

A. A diminution of the stainable substance of the composition of that cell.

Q. How did you ascertain that there was a diminution of that stainable substance?

A. By employing agents which have an affinity or for which the granules have an affinity.

Q. Is or not that a standard test, that is made for that purpose?

A. Yes, sir; it is.

The Court: A diminution in what substance, stainable substance?

The Witness: Yes, sir; stainable substance.

The Court: And how do you spell that?

The Witness: (Spelling) S-t-a-i-n-a-b-l-e.

BY MR. MILLER:

Q. What is the function of that stainable substance that you say was absent?

A. Well, the exact function of every constituent of the cell life is hard to determine, particularly the heart of the cell is the most essential part,—forming the brain which is the cytoplasma, and is the part which helps in the nutrition of the cell, but as to the exact significance of the final composition that would be difficult to express an opinion on.

Q. Is or not the absence of this stainable substance that you have described there, normal or abnormal?

A. It is abnormal.

Q. When you speak of employing substances or a substance that has an affinity to determine the presence or absence of that stainable substance, what do you mean by the word "affinity" in that connection?

A. It is a selective property of taking the stain or dye more intensely.

Q. Did you find any similarity of lesions in the five rabbits about which you have been testifying throughout — or was there or not a general similiarity throughout?

A. There was a decided similarity in the lesions in these cases.

Q. Those granules that you spoke of that were absent, do I understand the absence of them or the diminution of them compared with the normal?

A. The diminution as compared with the normal and such diminution is usually indicative of an early stage of degeneration.

Q. And by degeneration you mean what?

A. By degeneration is meant a destruction of a part of the tissues, a breaking down process.

Q. Now, in these three rabbits Nos. 47, 48 and 49, did you discover anything that was abnormal as respects the brains of these rabbits?

A. I did not, sir.

Q. Had you ever observed these lesions and changes in the ganglion cells you spoke of in other rabbits except those five about which you have particularly testified?

A. Do you mean whether I have ever seen similar changes or have you reference to the rabbits which were sent over from the Department of Chemistry?

Q. I mean those sent over from the Department of Chemistry, these five about which you have testified.

A. I have examined the brain and spinal cord only in five cases, in five of those rabbits, and I could not state whether there were changes in the others.

Q. I am not asking as to that, but I am asking as to whether or not in these five cases they differed from the examination that you made in divers other cases, and if so, whether or not these changes that you have observed were normal or abnormal.

A. They were abnormal.

Q. You have studied others under the microscope?

A. Yes, sir.

Q. In these three rabbits, 47, 48 and 49, did you find the same or different condition as to the stomach and intestines as compared with the remainder of the rabbits on which you held these post mortems?

A. They were practically normal.

Q. These three?

A. Yes, sir.

Mr. Miller: That is all.

CROSS-EXAMINATION,
BY MR. HIRSCH:

Q. Doctor, in order to ascertain the cause of death in animals, is it necessary to make a complete autopsy for the purpose of eliminating all possible causes of death?

A. I have not given any causes of death.

Q. I asked you the question as a pathologist.

A. Yes, sir.

Q. Have you ever made any autopsies on human beings?

A. Yes, sir; I have.

Q. Now, in these post mortems on human beings to find out the cause of death, do you usually stop with the post mortem examination of the heart?

A. No, sir; you do not.

Q. In examining a heart which is simply contracted,

and you cut it with a knife and you do not extend your examination any further, could you tell if the heart was diseased?

A. I could not. I will qualify this statement that there may be deleterious lesions or parisites which the knife may strike, but as to the final changes I would have to examine it microscopically.

Q. Doctor, taking the animals that you examined,—I got the numbers as follows, I wish you would follow me and see if I quote the proper numbers.

A. All right.

Q. Forty-seven?

A. Yes, sir.

Q. Forty-eight?

A. Forty-eight.

Q. Forty-nine?

A. Forty-nine.

Q. Forty-four?

A. Forty-four.

Q. Forty-five?

A. Forty-five.

Q. Forty-six?

A. Forty-six.

Q. Thirty-six?

A. Thirty-six.

Q. Fifty?

A. Fifty.

Q. Thirty-seven?

A. Thirty-seven.

Q. Thirty-eight?

A. Thirty-eight.

Q. Thirty-nine?

A. Thirty-nine.

Q. Forty?

A. Forty.

Q. Forty-two?

A. Forty-two.

Q. Now, Doctor, did you make a macroscopic examination of every one of those animals?

A. I made a macroscopic examination of every one of those animals.

Q. What organs of the body of each and every one of those animals did you make a macroscopic examination of?

A. I did not quite catch your question.

Q. What portions of the body of each one of those animals did you make a macroscopic examination of—of each one of them?

A. I would have to go into my notes because I could

not remember every individual case.

Q. Just refresh your memory, then.

A. Do you want me to start with No. 47?

Q. Just start with the most convenient one to yourself.

A. In Rabbit No. 49 I made an examination of the brain, the spinal cord, the membranes, the heart, the lungs, the liver, the stomach, the intestines, the kidney and the bladder.

In Rabbit No. 48 I examined the brain, cord, the heart, the lungs, the liver, the stomach, the small intestine, the kidney and the bladder.

In No. 47 I examined the brain, the spinal cord, the membranes or coverings of the brain, the heart, the lungs, the liver, the stomach, the small intestine, the large intentine, the kidney and the bladder.

In 46 I examined the brain, the cord, the membrane, the lungs, the heart, the liver, the stomach, the small intestines, the large intestines, the bladder, the spleen and the pancreas.

In No. 45 I examined the brain, the spinal cord, the coverings of the brain, the heart, the lungs, the liver, the stomach, the small intestines, the kidney, the bladder, the spleen and the pancreas.

Mr. Miller: What is that last?

The Witness: The pancreas, the sweetbreads.

A. (Continuing) In No. 44 I examined the brain, the spinal cord, the membranes, the lungs, the heart, the liver, the small intestine, the large intestine, the kidney and the bladder.

In No. 42 I examined the brain, the spinal cord, the membranes, the lungs, the liver, the kidney, the stomach, the small intestine, the large intestine and the heart.

In No. 50 I examined the brain, the spinal cord, the membrane coverings, the heart, the lungs, the liver, the stomach, the small intestine, the large intestine, the kidney, the bladder, the spleen and the pancreas.

In No. 40 I examined the brain, the spinal cord, the coverings, the heart, the lungs, the liver, the stomach, the small intestine, the large intestine, the kidney, the bladder, the spleen and the pancreas.

In No. 35 I examined the brain, the spinal cord, the membranes, the heart, the lungs, the liver, the spleen, the stomach, intestines, kidney, bladder.

In No. 38 I examined the brain, the spinal cord, the membranes, the heart, the lungs, the liver, the stomach, the small intestine, the large intestine, the kidney, the bladder, the spleen and the pancreas.

In No. 37 I examined the brain, the spinal cord, the

membranes, the heart, the lungs, the liver, the gall, bladder, the stomach, the small intestine, the large intestine, the kidney and the bladder.

In No. 36 I examined the brain, the spinal cord, the heart, the lungs, the liver, the kidneys, the stomach, the small intestine, the large intestine.

Q. Now, Doctor, as I understand you this is the macroscopic examination.

A. Yes, sir.

Q. That is by the eye?

A. Yes, sir.

Q. Now, in case of rabbits 47, 48 and 49, did you make a microscopic examination?

A. No, sir, because the macroscopic examination did not warrant any microscopic examination.

Q. And you did not make any microscopic examination?

A. I did not.

Q. Could you tell by your macroscopic examination as to whether there was any chromotolysi — did you make any bacterial examination of any of these animals?

A. No, sir.

Q. Then the congestion might be caused by bacterial infection, might it not?

A. If there was a disposing cause of bacterial origin. In other words, if the animal received any micro-organism in the way of an injection, or if it had any wound by which infection could have taken place, it might have been.

Q. The congestion might have been caused by bacterial infection?

Q. Doctor, in any of these animals, whether you examined them macroscopically or microscopically, did you examine the aorta?

A. Yes, sir.

Q. Did you mention it in going over them?

A. No, sir.

Q. You examined it?

A. As a general rule in opening the heart I opened the aorta.

Q. Did you examine it any further than simply looking at it, Doctor?

A. Only at the beginning in opening the heart.

Q. Did you know the sex you examined?

A. I did not mark it down, but I examined in making the post mortem — I invariably examined whether it was a male or female, to see whether there was any enlargement of the reproductive organs or glands.

Q. Did you notice any pregnancy at any time?

A. There was not.

Q. You said you were a histologist.

A. Yes, sir.

Q. Could you give me the histology of the human cell?

A. Yes, sir.

Q. Would you do so?

A. I will do so. A cell consists of delicate covering or membrane which envelops the cytoplasma, or protoplasm, inside of which is found the nucleus. The nucleus is surrounded by a delicate membrane of its own which is the nuclein membrane and which consists of the protoplasm somewhat different from that of the cytoplasma, insofar that they have a certain substances which have a great affinity for the same and which are called the chromatin. It consists of a delicate fibre which has an affinity for these.

Q. You stated the nucleus of the cell.

A. Yes, sir, it may have a nucleus or it may have a pura cucleus or a central zone which has additional parts which are not found in every cell.

Q. And the nucleus made up of what is known as nuclei*n* or nuclein?

A. They are.

Q. That would not be a part of histology — that is chemical?

Q. You talk about the condition of congestion of the liver and the stomach and the kidney.

A. Yes, sir.

Q. Now, as a matter of fact, might not this have been due to these animals that you killed by chloroform, due to chloroform?

A. No, sir.

Q. How do you know?

A. Chloroform kills by arresting the heart action, paralyzing the heart.

Q. Does not that lead to congestion?

A. If the animal would get the chloroform inhalations for a long period very slowly and gradually, it might lead to irritation or congestion of the lungs ——

Q. (Interrupting.) That might lead to congestion?

A. —— but not in the liver.

Q. Doctor, did you find anything in your microscopical examination different from your examination with the naked eye?

A. Now in which cases have you reference to?

Q. In those cases where you made both a macroscopic and a microscopic examination.

A. I made a microscopic examination only of the brain

and spinal cord, but not of the other organs.

Q. In other words, in all the animals you have enumerated, you only made the microscopic examination of the brain and spinal cord in the five animals?

A. Yes, sir.

Q. No other microscopic examination?

A. No, sir.

Q. You spoke of chromotolysi of the ganglion cell; how did you fix the brain tissue for the examination of these cells?

A. The tissues were fixed in formaldehyde, a ten per cent solution of formaldehyde.

Q. Did you fix up the slides generally fixed by pathologists?

A. Yes, sir; I did.

Q. Have you those slides with you?

A. No, sir.

Q. Now, Doctor, is it not your opinion as a pathologist, that if there had been any change, organic or otherwise, that you could have detected the change, organic or otherwise, under the microscopical examination?

A. If the change is not sufficient to be seen by the naked eye, it is probable of not enough organic disturbance of much consequence.

Q. I ask you by microscopic, not macroscopic.

A. Then I misunderstood your question.

Q. If there had been any changes, organic or otherwise, do you know whether or not, as an experienced pathologist, it could have been detected by microscopical examination?

A. Yes, sir.

Q. Could it have been detected?

A. Yes, sir.

Q. What is the difference you draw — I notice you use the word "congestion" and "full." What is the difference you draw between them?

A. The difference between the terms is only of degree of intensity in pressure, or distension of the vessels. In other words, we may have a physiological increase of one vessel, and we may have a fullness which goes beyond that, and if it goes beyond that, they have a state of congestion.

Q. You spoke of irritation. On what did you base your opinion concerning irritation; upon the appearance of the congestion only, is that the reason you say there was irritation?

A. Whenever we have an abnormally full blood of any part of an organ, there must be an irritant or a cause, which may either be slight or intense.

Q. Could not this cause come from an enormous quan-

tity of food or fluid taken into the stomach of the rabbit?

A. That would depend on the irritating quality of the food. Food in a normal state, would cause a slight physiological increase, but it would not cause congestion. If the material is more intense or more irritating, then it would cause a greater extent of distension of the blood vessels, which would lead on, or which would terminate in a congestion.

Q. Suppose an abnormal kind of food, or an abnormal amount of food were given to a rabbit, would not this cause congestion?

A. If this food is acting as an irritant in any way, yes.

Q. Doctor, did you have normal animals sent you at the time these animals were sent you so that you could make a parallel examination of the animals?

A. I have been examining normal animals for twenty-five years.

Q. Doctor, did you have animals sent to you that were kept under the same conditions as these animals that were sent to you?

A. No, sir.

Q. Does not a change or diminution in the stainable substances begin immediately after death?

A. Well, yes, but you could hardly say immediately. It would take a little while before the change could begin.

Q. What do you mean by little while?

A. That is, when the animal was killed or chloroformed, the body temperature would keep the tissues in approximately the same state in which they were before the animal was killed. On the other hand, if the animal was kept a number of hours particularly subjected to differences of temperatures, then the disintegrating changes might take place.

Q. Now, in those five animals, the brains and spinal cords of which you examined, how long after death did you make the examination of them?

A. They were examined within one or two hours after their decease.

Q. They were chloroformed, were they not, and if not, which ones were not?

A. These particular five that you refer to were not chloroformed by me, so I could not say.

Q. They were dead when they arrived at the Bureau of Animal Industry?

A. They were, yes.

Q. I beg pardon?

A. Yes, sir, they were.

Q. They were dead when you saw them, when they arrived?

A. Yes, sir.

Q. How do you know how long they died before you saw them?

A. I do not know that.

Q. Then, as far as you know, this change might have occurred after death — the chromotolysi.

A. If the animal has been kept a long period of time, there might be some degenerative changes alike but not identical.

Q. You said that there would be those changes in answer to my question a few minutes ago, but if they were kept about two hours ——

A. That the changes would take place in two hours?

Q. Yes.

A. Oh, no.

Q. That they would commence taking place two hours after death?

A. The changes would begin, but hardly those changes which I discovered.

Q. Could you distinguish between the changes you discovered and the changes that would take place after death?

A. If the animal had been kept a long time after death, then the changes would be ——

Q. (Interrupting.) How long?

A. That would depend on the temperature. For, instance, in some, decomposition and breaking-down of the tissue takes place comparatively rapidly.

Q. How do you know what the temperature was in the room where the animals were kept?

A. I do not know.

Q. How rapidly would it take place under different conditions of temperature?

A. Inside of a few hours. I could not stipulate the exact number of hours, but the temperature, would no doubt, have some bearing.

Q. I wish you would describe in detail exactly what you mean by chromotolysi of a nerve cell.

A. In studying the minute structure of a cell life, it is found we cannot see the finer parts of a cell unless certain agents or dyes, are used. The ordinary dyes have affinity for the part known as the nucleus. These dyes are spoken of as nuclein dyes. These dyes are used in general miscroscopical examinations when they wish to distinguish between cell fibres and the general arrangement of the body. It has been found in neurological work —the study of the nerve elements, that while the ordinary

substances which are employed in average miscroscopical examinations will suffice to show the kernel from the remaining part of the cell, they will not suffice to bring out the more delicate part. Nissl has employed a certain stain by which he could bring out granules that were not stained by other dyes. These granules were called Nissl granules, or the chromatical granules, and are quite numerous and quite uniformly distributed in the cells. Now, as to the result of the generation, or degenerative process, the composition of the protoplasm suffers a certain amount of breaking down. During this breaking down, tain substances pass out the cell and this dissolution of certain substances from the cell is technically spoken of as chromotolysi.

Q. Might not chromotolysi be due to the influence of chloroform?

A. I am not prepared to answer that question.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Kindly refer to your notes as to rabbits, numbers 50, 37, 38, 39 and 40, and state from those notes your recollection as refreshed therefrom, as to whether or not those rabbits were sent over dead from the Bureau of Chemistry or whether they were chloroformed after they came over to your Bureau.

A. Rabbits numbers 50, 37, 38, 39 and 40, were sent alive. Number 50 I chloroformed and autopsied March 7th. No. 37 I chloroformed on March 6th. No. 38 I chloroformed on March 8th. No. 39 I chloroformed and autopsied March 7th. No. 40 on March 7th.

Q. How about rabbits 47, 48 and 49, were they sent over alive?

A. Rabbits 47, 48 and 49 were sent over alive.

Q. Did you chloform those?

A. Those I chloroformed and made the autopsy of.

Q. Now, in these cases where you chloroformed the rabbits and then examined them, within what time did these examinations commence by you?

A. Usually within about ten minutes after the animal was taken out of the chloroform box, or rater, after animal was dead.

Q. Doctor, was there not anything in your naked eye or macroscopic examination that you spoke of, that warranted you in your opinion, in pursuing a miscroscopic examination, that is, with the aid of the microscope?

Mr. Sizer: I object to that question. He might ask him why he didn't make it.

The Court: I think that is what he means.

Mr. Miller: He asked him why and he said it didn't warrant it. I am bringing it out and ask him in order to explain one of Mr. Hirsch's questions— he asked him why he didn't make it and he said it didn't warrant it, and I asked him why he did not.

The Court: The exception is overruled.

The Witness: The microscopic examination is usually made if the lesions are sufficiently pronounced, or else if a minute examination is wanted by the individual sending the tissues for examination for some special reason, but as a rule, if the macroscopic changes are not sufficient, then nine chances out of ten, the miscrospic would be absent.

BY MR. MILLER:

Q. Now, as to whether or not these five rabbits that you examined the brains of under the microscope, had any infectious disease, or had been poisoned by bacteria, was there or not anything that you discovered there in your macroscopic or microscopic examinations which indicated that they had been poisoned by bacteria or that they had any infectious disease?

A. There was nothing which led me to believe there was bacterial infection, or bacteria poisoning, or that the lesions were brought about by the presence of bacteria.

Q. In what respect do these changes that begin to occur after death, differ from the changes which you say you observed, or the degenerating indications which you describe in your miscroscopic examinations of the animal brain.

A. The degenerative changes which take place after death are generally not confined—they are not only in the cells of the brain but go to every tissue in the course of time, causing disintegration, putrifaction, and by which is meant a bad odor, that is commonly understood by spoiled meat or spoiled part of the body.

Q. In instances where the rabbits or animals have not been dead longer than these which you chloroformed, did you ever observe these changes in the brain which you say you discovered by the aid of the miscrocopic examinatons, this diminution of the granular substance?

A. In the five cases that were examined microscopically, the animals was received dead, was not chloroformed, so I could not make any statement as to how long the animal was dead. It is usually as I stated——

Mr. Hirsch: I object to any statement as to what is usual unless he means he refers to his own experience.

The Witness: To my own—it is usually posted by me

within an hour or two after the animal is received.

Mr. Sizer: I object to that unless he shows he followed that in this case, it is immaterial what the Doctor may usually have done.

BY MR. MILLER:

Q. I will ask you ——

The Court: (Interrupting.) I substain the exception.

BY MR. MILLER:

Q. Well, speaking from your experience and observations of these five rabbits wherein you discovered the absence of granular substance, state whether or not the general internal appearance of the rabbit indicated to you that the degenerative process, which you have described in the brain and spinal cord, was due to the effect of long death, post mortem changes so to speak, changes occurring after death, or whether or not they were due to the reception of substances during life.

Mr. Sizer: I object to that question. In the first place, it is leading, and in the second place, the witness already stated he was unable to form any opinion because the animals came there dead.

Mr. Miller: I submit he has not stated that he was not able to state how long or to form an opinion as to how long——

The Court: Well, it would be best—the only effect of it would be the weight of it.

Gen. Cox: Your Honor will remember he said he could not tell how long they were dead, and he did not state whether he could tell whether the death occurred or the changes occurred by something taken before death or by something after death causing the destruction of the tissues by mortification.

The Court: The only question is as to whether or not it is leading.

Mr. Miller: How is that?

The Court: I think the question is perhaps objectionable in that in his last alternative as suggesting what would have been the cause of things that were received before death—you may ask him the question whether his opinion is the appearance indicated that the degeneration was a post mortem degeneration or one during life.

BY MR. MILLER:

Q. All right, Your Honor. From your experience, refreshing yourself from your notes, how long——

A. (Interrupting.) You mean how long had these

five animals been dead?

Q. Well, yes; that you examined microscopically.

A. They were received dead and how long they were dead I am unable to state. They were not cholorformed by me.

Q. I am not asking you as to that, how long, but did you discover anything in the post morterm that you held which would give you a definite idea as to approximately how long they had been dead?

Mr. Sizer: The witness having answered twice he could not tell how long the rabbits had been dead, it is not competent to cross-examine him in that way.

The Court: He said he could not answer definitely, and now he is being asked if he could tell approximately.

The Witness: I could tell approximately the animals were not dead a long time because the tissue changes would be very pronounced.

BY MR. MILLER:

Q. Did you find any pronounced changes which would have occurred as a result of long death or post mortem changes so to speak?

A. No, sir; I did not.

Q. Then, state whether or not these granular—any any granular changes, or the absence of this graular matter you spoke of, in your opinion, was or not due to the post mortem changes or whether due to other causes?

A. It was not due to post mortem change, but was brought about by some other causes.

Q. And in those five rabbits that you did microscopically examine, state whether or not there was similarity of appearance, both to the naked eye of the intestines, and intestinal structure.

A. There was similarity as far as fullness of blood vessels and congestion was concerned.

Q. Now, was there or not a similarity in the microscopic examination?

A. Yes, sir; there was not likewise a similarity in the microscopic examination.

Q. Are you prepared to state what the general custom of authors is in making reports of cases for medical publications, as to whether or not they report the usual or exceptional conditions.

A. I don't know whether I quite understand your question.

Mr. Sizer: I object to that—that is not a question of expert testimony—you might as well ask a lawyer whether

usually or customarily the text writer reports a case correctly.

Mr. Miller: I am not asking for the correctness of it, but asking as to the custom——

The Court: You asked him for medical and scientific works in his domain.

Mr. Miller: I will limit it in that particular.

The Court: You expect to make that competent?

Mr. Miller: I expect to make it applicable to certain things that have been brought out.

The Court: I will allow it as to his line, you may ask the question.

The Witness: Usually a brief memorandum of the salient or prominent changes are made in the post mortem room, however, when a complete accurate post mortem examination is not called for, and by those we mean that we examine those changes which are apparent and which would leave any doubt when examined microscopically.

BY MR. MILLER:

Q. And that applies to the science in which you are a professor and teacher and of which you are a student?

A. If a post mortem is made before students, where you wish to report every change and every possible deviation from the normal, you have to go over it in detail—and give a brief description of the changes as far as you may in the post mortem room.

Q. Well, applying it to these particular cases where you made post mortem examinations, is your rule or custom or that of other practitioners to note a normal or the abnormal conditions or to make mention of the normal or abnormal conditions?

A. Well, usually, the abnormal conditions are noted, and the normal conditions are usually left out—there is no reason why one should refer to them.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. In your last statement which you made as to the heart being cut, being difficult to cut—the heart fiber—

A. (Interrupting.) If the heart cuts difficult, it might probably be due to puerpereal or irritation taken place, the knife may strike a granular substance——

Q. (Interrupting.) You say all the animals you examined microscopically came over to you dead?

A. Yes, sir.

Q. In what fluid did you put the brain?

A. The nerve tissues were put in ten per cent solution of formaldehyde.

Q. Is it not a scientific fact that unless the nerves of the brain are immediately put into a solution of formaldehyde, that chromotolysi will commence immediately afterwards?

A. It would be going too far to say that it begins immediately, because it is hardly possible that immediately after death that particular process would take place.

Q. Is it possible that it would take place immediately after death?

A. I would not venture to express an opinion on the length of time when that process would take place.

Q. Doctor, not having examined any of these animals bacteriologically, you cannot in a single case exclude the possibility of some spontaneous bacteriological infection?

A. If the animal was brought from an unknown source where no supervision or examination of record was kept as to the feeding, as to the condition in which the animal was kept, it would be difficult to express an opinion, but when an animal is kept in a Government laboratory where the officer is, so to speak, employed by the Government and have to do as told by his chief, there is no likelihood that there could be any possible meddling with the animal.

Mr. Hirsch: I move to strike out the answer because it is not responsive to the question. I asked him simply the question if he had examined any of these animals bacteriologically and if he had not, could he in a single case exclude the possibility of spontaneous bacterial infection, and then he goes on to tell me how the Government does it.

The Court: The answer is excluded.

BY MR. HIRSCH:

Q. Just answer my question, Doctor.

A. Well, there would be no possible way unless the animal had some external wounds, or has received food which might lead to bacterial infection.

Q. You did express an opinion as to how long these animals had died before they were brought over to your bureau.

A. I simply stated that the tissues were not in a state of decomposition but were sufficiently fresh to warrant me in stating that the animal was dead a limited number of hours, how many hours I could not tell.

Q. Now, Doctor, as to that, would not your answer

be modified according to the condition or change of temperature?

A. It would; if the animal was kept in the store room, if the animal would be exposed in a careless manner, but not if the animal was placed in an ice chest immediately after death, which is the custom in keeping animals in the bureau.

Q. You say the placing of an animal in an ice chest would not make any difference in it?

A. No, sir; only in so far that it would prevent decomposition.

Q. Then, if it did prevent decomposition, that would make a difference as far as you could tell in your opinion as to how long these animals died before they were brought to you?

A. I could not answer.

Q. Doctor, can you tell whether or not chromotolysi is or is not present by the naked eye?

A. Nobody could tell that.

Q. Doctor, suppose these rabbits were fed a food, in an abnormal quantity or an abnormal amount, or rather abnormally given this food, it was given by way of the mouth with a tube placed down the throat in these animals, could not that have caused chromotolysi?

A. I don't see what possible connection there could be between the tube and chromotolysi.

Q. You say it could not possibly have caused it?

A. No, sir.

REDIRECT EXAMINATION.

BY MR. MILLER:

Q. Did you find any wound on these rabbits, any evidence of external infection that could have caused this chromotolysi that he speaks of?

A. No, sir.

Q. State whether or not you have examined the brains of rabbits frequently which have received the normal food, that is, normal food such as oats, carrots and cabbage and things of that kind.

A. I have to examine animals almost every day in a week in my experimental work and during the two years I had charge of the rabies examinations—mad dogs—madness in dogs, I have conducted several hundred experiments where my work threw me in close contact with the nervous system and examination of these tissues.

Q. Where was that you were connected with that hydrophobia or rabies examination?

A. In the District of Columbia a number of animals are sent—well, it becomes necessary to see whether the

animal has rabies or not—a dog having previously bitten some person, before the person receives or submits to the treatment for it, the Bureau usually examines into whether the animal had rabies or not.

Q. And you were entrusted with that work, you say, for two years?

A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. You did not completely answer my last question that I put to you.

A. I thought I answered it.

Q. I asked you if abnormal food, of an abnormal quantity or kind of food, should be given a rabbit by way of the mouth through a tube, chromotolysi in that case might be due to the tube, and you said no, not to the tube.

A. I understood your question whether it would be due to the tube.

Q. It would not be due to the kind or quantity of food taken?

A. If the food be an irritating substance, phosphorus or arsenic, or other substances were given, it might induce lesion and changes.

Q. Doctor, you say that all of the rabbits, I believe, had tags in their ears?

A. Yes, sir.

Q. With numbers on them?

A. Yes, sir.

Q. In what way were they put on there?

A. There was a small stiff cardboard and it had something like a thin wire staple which was pressed through the ear and the two ends bent on each side.

Q. Now, suppose that had been on the rabbit's ear covering a period of from one to six or eight months, could that not have caused an infection?

A. That would depend upon the size of the wound and the precaution with which the tag was applied. In the first place in applying these tags the material is disinfested, the ear of the animal is disinfected.

Mr. Hirsch: I object to that. I want to know if they could not cause infection.

A. Could not.

BY MR. HIRSCH:

Q. Could not?

A. No, sir.

Q. Why not?

A. Because every sanitary precaution has been taken

to disinfect the part whereby no infection would take place.

Q. How do you know that, Doctor?

A. Well, there is no exposure—everything is sealed up, being a perfect wound and hygienically made—it heals up in a very little while.

Q. How do you know it was cleaned?

A. Well, usually there is—

Q. (Interrupting) I say, how do you know these particular animals were cleaned that way?

A. Because they are not applied in any other way in the Government work.

Q. Did you see them put in?

A. I did not.

Q. Did you see them cleaned?

A. No, sir.

Mr. Hirsch: Then I move, Your Honor, to strike that portion of his answer from the record.

The Court: The motion is sustained and that portion which relates to the manner in which the tags were put on the ears is excluded.

BY MR. MILLER:

Q. Did you find any local manifestations of poisoning, Doctor, in the ear.

A. I did not.

Q. From the applying of these tags?

A. No, sir.

Q. If there had been any infection due to that, would you have found some manifestations?

A. There would have been some—they were properly healed up where the tag was applied.

RE-CROSS EXAMINATION
BY MR. HIRSCH:

Q. Is it possible and likely that it might heal and still be an infection?

A. Well, the wound was so small that it would be impossible to imagine the possibility of an infection.

Q. How big a wound is necessary to produce infection?

A. Well, in the first place, the ear is not a very favorable place through which infection would take place. The size of the wound which is necessary to produce infection, of course, I could not state in exact dimensions, but if we make an incision and lay open the sides where there is—a micro-organism,—the incision in these micro-organisms is more probable than if you would make a puncture into it in which you insert a small metallic part, which is a point, and you bend that over so as to shield the external

part of the ear from any visible invasion.

Q. Well, it might be probable or improbable, but does that necessarily exclude any infection that could come from the wound that even healed before you saw the rabbit dead, the placing of that little piece of pasteboard on the animals' ear?

A. No, I could not concede the possibility of it.

BY MR. MILLER:

Q. Have you ever known of one being infected in that way?

A. How was that?

Q. Have you ever observed, in the many rabbits you have experimented on, any infected in that way?

A. No, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. Have you made bacteriological examinations in a single case?

A. No, sir; not in these cases.

(Witness excused.)

B. A. GALLAGHER,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Gallagher, what is your age and your profession?

A. My age is thirty-one and I am a veterinarian in the Bureau of Animal Industry.

Q. Of what institutions, if any, are you a graduate?

A. Cornell University.

Q. When did you graduate there and what course did you take?

A. I took the veterinary course and graduated in 1901.

Q. What experience have you had since in your profession.

A. I have been connected with the Bureau of Animal Industry since graduation with the exception of six months when I served as assistant chief in the department of Animal Industry in the Cuban Republic.

Q. Well now, as a member of the Bureau of Animal Industry or connected therewith, what has been your duty, what character of work have you done?

A. For about five years my work consisted of making post mortem examinations in the packing houses of the West.

Q. Packing houses of the West?
A. Yes, sir.
Q. In what cities?
A. Kansas City and St. Joseph, Missouri.
Q. What kind of packing was taking place—packing of what animals?
A. Cattle, sheep, hogs and goats.
Q. You were a Government representative there?
A. Yes, sir.
Q. Charged with the matter of sanitary inspection?
A. Yes, sir.
Q. Have you ever done any pathological or bacteriological work, and if so, what?
A. I have done pathological and bacteriological work in the pathological laboratory at Washington.
Q. To what extent?
A. To the extent of making pathological and bacteriological examinations of specimens sent in from various parts of the country.
Q. Did you make post mortem examinations of any of the rabbits that are shown on the exhibit to Doctor Morgan's deposition or his testimony in this case? And if so, you can identify the rabbits by the tag number that appeared on the ear of the rabbit when it reached the Bureau of Animal Industry with which you were connected—in the number of the rabbits which you thus posted.
A. I posted sir. They were numbered 26, 27, 28, 29, 33 and 17.
Q. Now state what was your course—the course that was pursued—in making these post mortem examinations generally, and also how long it was after the animals were received before the postmortems were made.
A. The method of procedure was——
Q. Refer to your notes, if you like.
A. The rabbits were brought over as a rule and the post mortem examination was conducted either immedeiately on arrival or within the course of an hour.
Q. Now then, what did you do in making that post mortem?
A. The animal was opened and the viscereal organs exposed.
Q. Just tell the jury about it; talk a little louder.
A. And any abnormal lesions were noticed, any appearance different from the normal appearance of these organs.
Q. You noted only the abnormal changes you found?
A. Yes, sir.

Q. Now, if there were any abnormal conditions noted in those six rabbits which you opened and examined, tell the jury in a general way what those conditions were.

A. Well, in a general way there was congestion of the intestines.

Q. What do you mean by congestion?

A. An increased supply of blood above the normal, in the blood vessels of the organs. In some cases there was congestion of the stomach and in some cases congestion of both stomach and intestines; also the liver and the kidney were as a rule involved.

Q. Were as a rule what?

A. Involved.

Q. What do you mean by involved? Any difference from the normal? If so, in what respect?

A. They showed abnormal changes especially in that they were congested—they showed congested spots.

Q. Did you know at the time that those animals were sent over what they had been fed on—how much they had been fed?

A. No, sir; I knew nothing about them. I am receiving a great number of rabbits and guinea pigs from different sources and post them as they come and return post mortem notes on them to the Department of Chemistry.

Q. You have the original notes which you made yourself on each and all of those rabbits?

A. Yes, sir.

Q. Did you or not know for what purpose these specimens were sent to you? That is, what the Bureau of Chemistry was trying to determine?

A. No, sir; I knew that there were some experiments that they were carrying out but I did not know the nature of them.

Mr. Miller: That is all.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. Doctor, were those rabbits dead of alive when you got them?

A. Five of these rabbits were dead and one was alive.

Q. Five were dead and one was alive?

A. Yes, sir.

Q. What did you do with the live one?

A. Chloroformed him.

Q. Chloroformed him?

A. Yes, sir.

Q. What was the number of that rabbit?

A. Number 29.

Q. You do not know, of course, how long the other five rabbits had been dead?

A. No, sir; I do not.

Q. Did you make a microscopical examination of each of those rabbits?

A. No, sir. I did not make a microscopical examination of each one of those rabbits.

Q. Only what you call a macroscopical examination?

A. Yes, sir.

Q. You say you found certain organs congested in some of the rabbits?

A. Yes, sir.

Q. In all of them?

A. Well, there were certain organs congested in each one of them but in some cases one organ might not be congested.

Q. In one rabbit you might find slight congestion in one organ, and not in the other; is that true?

A. I think in most cases there was more than one organ involved.

Q. But in some cases there was only one organ involved?

A. I don't hardly think there was a case where there was only one organ involved.

Q. Was there a case where there were more than two organs involved?

A. Yes, sir.

Q. How many?

A. Five of them showed more than two organs involved and one showed two organs.

Q. Did you make any examination of the other organs, the brain and spinal cord?

A. No, sir; I did not examine the brain and spinal cord.

Q. Did you find any other trouble in any of those rabbits except the mere fact of congestion in certain of these organs?

A. I could not recall now. I expect if there were any other changes it would be noted here.

Q. And you have not noted any other change?

A. No, sir.

Q. And from that you assume that there were no other changes?

A. At this time I do; I could not recall.

Mr. Sizer: That is all.

Mr. Miller: Was there anything in these rabbits to indicate that they had ben dead sufficiently long for these

abnormal conditions or changes you found to have resulted after death?

The Witness: No, sir; there was no such indication.

Mr. Miller: That is all.

BY MR. SIZER:

Q. The fact is, you could not tell how long they had been dead?

A. I could tell that they had not been dead a great time.

Q. They had not been dead long enough to putrefy?

A. No, sir.

Q. They might have been kept in an ice chest for a long time without showing any evidence of decay or putrefaction?

A. They might have been.

BY MR. MILLER:

Q. This one that was not dead had not been kept in any ice chest?

A. No, sir; that was examined immediately after it was killed.

Q. Was the internal condition of the rabbit in a general way substantially the same.

BY MR. SIZER:

Q. That one rabbit was killed by chloroform?

A. Yes, sir.

Q. How long after the chloroform did it take him to die—how long did the process of dying go on after you administered the chloroform?

A. As a rule, possibly a minute or two minutes.

Q. Then how soon after he died did you conduct the post mortem?

Within practically a quarter of an hour.

Mr. Miller: All right.

DR. WORTH HALE,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor Hale, what is your profession?

A. Pharmacologist.

Q. What is a pharmacologist?

A. One who studies the action of drugs to observe their effects on the body, especially of the lower animals.

Q. Why not on man?

A. We are not justified in making experiments on man although in certain instances it is done to a limited extent.

Q. Of what institution, or institutions are you a graduate?

A. I am a graduate of the University of Michigan.

Q. What course did you take there?

A. I took the course leading to the degree of Bachelor of Arts and of Medicine.

Q. Took them both the same year?

A. No, sir.

Q. In what year did you take the degree of Bachelor of Arts?

A. My degree of Bachelor of Arts was taken subsequently to my degree in medicine.

Q. Just give the year.

A. 1908, Bachelor of Arts; 1904, the degree in medicine.

You took the degree of Doctor of Medicine in 1904?

A. Yes, sir.

Q. What active service or experience have you had since your graduation in either or both branches?

A. After graduating in medicine I had a year of hospital work in the West, in Montana; and subsequent to that I was asked to go to the University of Michigan to take an assistantship in Pharmacology.

Q. How long were you connected with the University of Michigan as an assistant in Pharmacology?

A. Three years.

Q. During that time what was the course of your duties—what were your general duties?

A. I had some lecture work and then I had the laboratory work for the medical students in pharmacology.

Q. What do you mean by laboratory work?

A. To teach the students the action of drugs, it is necessary or very much better, at least, for them to see with their eyes what drugs will do. For this purpose we use the lower animals of varius sorts—dogs, cats, rabbits and frogs. To these animals drugs are given and the effect is noted. Under my supervision the students were allowed to do these various things:

Q. Who were the professors in pharmacology of the University of Michigan while you were a student there?

A. Professor Cushny.

Q. Where does Professor Cushny reside now?

A. University College, London.

Q. Is that the Professor Cushny who has written a

work on pharmacology?

A. Yes, sir; it is.

Q. With what society or societies for medical research or pharmacological research are you connected?

A. I am a member of the American Medical Association, the American Pharmacentical Association, the American Physiological Society and the International Congress of Applied Chemistry.

Q. You have been connected with the public health service?

A. During the last three years or about three years now.

Q. What position do you hold now?

A. I am assistant in pharmocology in the United States Public Health and Marine Hospital Service.

Q. Are you in any way connected with the Bureau of Chemistry or of Animal Industry at Washington?

A. I am not.

Q. I will ask you whether or not you were especially permitted or detailed to come here by the surgeon general?

A. The Surgeon General issued orders that I should proceed to Chattanooga on special duty in connection with this case.

Q. Did you ever have any personal experience with the substance called caffeine?

A. I did not catch the first part of your question.

Q. I asked you if you ever had any personal experience with caffeine, whether you ever took any of it yourself.

A. Yes, sir.

Q. The pure substance or the citrate, either?

A. Yes, sir.

Q. Under what circumstances did you take it and how much?

A. It was the year after I graduated, I was taking the state board examination, and after the second,—after two and a half days of the examination, it was the last half day of the test that I was taking and I was tired, and I thought I would stimulate myself to enable me to do the remaining subjects in the best way. So I took a dose of caffeine in tablet form, I do not remember the exact dose. My memory is it was two grains.

Q. What effect did it produce?

A. Well, I could not recall the immediate effect. I took it on my way to the place where the examination was held and when I started to write on the subject, it was as if I could not put anything down on paper that I thought of because it seemed that either my mind was

confused—I seemed to know the things I wanted to say but I could not get them down on paper. Before I could get the thing I thought of on paper, some other thought would be in my mind and it was a confusion of thoughts. And for about an hour, although the exact time I cannot recall, I was practically useless to myself and could not work upon the subject.

Q. Did it or not interefere with that process known as co-ordination?

A. Yes, sir; I think it might be called that.

Q. Now, have you made any experiments on the lower forms of animal life with caffeine?

A. Yes, sir; not only in my teaching work but subsequently.

Q. Have you made any recent experiments with caffeine, and if so, with what kind of animals and what form of animal life?

A. I have carried out experiments on mice and guinea pigs incidental to another research and quite recently also on frogs and on a dog.

Q. In your experimentation on frogs, was there any way by which you could determine the effect of the administration of caffeine as applied to or as it came in contact with the muscles of the frogs?

A. Yes, sir; I used the graphic method of recording the effect on the muscle.

Q. Is that or not a standard method?

A. It is.

Q. Is it possible in that connection or is it a part of that process to make a tracing that will show the effect of the caffeine as it comes in contact with the muscle of the frog?

A. The muscle is attached to a lever and every time the muscle contracts it pulls the lever up and makes a mark on a piece of smoked paper so that it is recorded.

Q. Did you or not in connection with this experimental work of yours make a tracing which would show the effects of caffeine as it was applied at the time to the muscle of the frog?

A. I did.

Q. What solution of caffeine did you use in making this experiment?

A. I used a solution of citrate of caffeine.

Q. What was the percentage or proportion of caffeine?

A. The caffeine was one part in 50,000.

Q. One part in 50,000?

A. Yes, sir.

Q. Now, have you a tracing with you that will show

the effect of the application or administration of that solution of one part of caffeine to 50,000?

A Yes, sir.

Q. I will ask you to produce that and file it as part of your testimony, as Exhibit No. 1, and show it to the jury and explain it.

Mr. Sizer: What do you say it is?

Mr. Miller: It is noting the effect of caffeine when it comes in contact with the muscles of these lower animals showing where there was caffeine and where there was not caffeine.

Mr. Sizer: We want to interpose an objection to all experiments made on caffeine applied directly to muscles. The evidence heretofore introduced shows that caffeine is never applied that way in human beings and therefore the effect of caffeine administered or applied directly to muscles in these animals can have no bearing on this case because the effect of caffeine taken into the stomach of a human being may be an entirely different thing from caffeine applied to a muscle of a frog or a mouse or dog.

Mr. Miller: Our response is that it has been shown that caffeine does come in contact with the muscle whether administered subcutaneously or administered through the mouth, and we will also show that by this witness.

Mr. Sizer: Who has testified to that?

Mr. Miller: I will ask Doctor Hale himself.

Mr. Sizer: But you said it had already been shown.

Mr. Miller: We have shown it by a number of witnesses that we have had on the stand. I can't pretend to point out everything that has happened in the last four or five days of testimony.

The Court: I do not know of any testimony to that effect.

BY MR. MILLER:

Q. I will ask you whether or not it is a fact that caffeine taken internally comes in contact with the muscle, and if so, how.

A. If given subcutaneously or by the mouth, or intravenously, it comes in contact by being carried through the blood stream and in that way it is applied directly to the muscle. I never have experimented any in giving frogs caffeine by the mouth; I have given it by injection into the lymph sacs by which it is carried in the blood to the muscles and generally throughout the whole body.

Q. If it is injected through the lymph sacs does it enter the circulation?

A. Yes, sir.

Q. If it is given in the mouth does it enter in the circulation?

A. It does.

Q. State whether or not the process of carrying it to the muscle and in contact with the muscle is the same in both instances.

A. It is.

Mr. Miller: Now, I submit, your Honor——

The Court: You may proceed.

BY MR. MILLER:

Q. Now, take your time and explain to the jury what these two lines represent on this tracing which I will ask you to file as Exhibit No. 1.

A. The muscle is attached to a lever. The muscle is kept in a chamber which keeps a constant temperature. This muscle is in one chamber and this muscle which records this other tracing is in another. Each muscle is connected with the electrical aparatus for stimulating the muscle, and every five seconds, or approximately five seconds the stimulus is given. The same electrical current which goes through the muscle recording here goes through the muscle recording here (indicating). So that the stimulus for each muscle is exactly the same. To the muscle tracing which is shown on this top place caffeine was given in solution one part in 50,000. To this bottom muscle nothing was added. You will notice as the stimulations go on, at first they approximately the same height but later they become weaker and weaker, in both cases, but with the top or caffeine muscle they become very much weaker and finally there is a failure of response. The failure of response in this instance appears about thirty-five or forty minutes after the experiment was begun. The muscle without caffeine was still contracting although not so well as at first, showing the effect of fatigue. This top tracing shows the poisoned muscle under caffeine.

Q. I will ask you to file that as Exhibit No. 1 with your testimony, but you can retain it for the present. What was that solution?

A. Ordinary table salt and other salts such as are found in the body. Tissues will live in this for hours.

Q. State whether or not the solutions applied to these muscles were the same in each instance as to the caffeine content.

A. They were.

Q. In what length of time did fatigue in one case precede that in the other? That is, complete fatigue or exhaustion?

A. It would be rather difficult to say from this tracing. I see in this tracing a thing which I did not point out which would lead me to believe it was the caffeine muscle which was becoming fatigued first. In physiology we have what is known as contracture and when fatigue comes on, the muscles begin to go into contracture, and it does not relax as much as normal, and that is apparent on this tracing.

Q. Speaking from your experience as well as the tracing, sate whether or not that exhaustion did appear and that fatigue did appear in the caffeine treated muscle earlier or later than in the other one.

A. My experience in quantitatively determining certain things is very limited and I would not be able to say. In this instance it did.

Q. In which muscle?

A. In the caffeine muscle.

Q. Now, did you make any animal experimentation and in that connection the tracing, using a dog as the substance?

Q. If so, have you such a tracing that was prepared in the same manner as the one where the frog muscle was used?

A. I have.

Q. Will you please produce that?

A. I have it here.

Q. Will you file it as Exhibit No. 2?

A. I will (indicating).

Q. Now, please tell us what that tracing represents and explains it also to the jury.

A. This tracing is made to record the action of the heart. The heart in a dog, after the dog is put to sleep with a suitable drug, in this case with morphine, and cheorotone, the chest cavity is opened so that the heart is exposed. In order to do this, one must give the animal respiration artificially, and a bellows is used for that so that the animal is able to breathe and after that the chest cavity is opened and the heart is exposed so that you can see it. The heart is surrounded by a little envelope and that is split open and then a needle is threaded through the heart, the external muscular layer, and the thread attached to the needle is tied to a lever or mechanism of which I do not think it is necessary to explain. As the heart contracts the lever is pulled down and leaves on this smoked paper a tracing. When the heart opens to fill with blood, the lever comes up so that at this point ——

Q. (Interruption). Is that indicated there?

A. Yes, sir; it is indicated on the tracing.

Q. As what?

A. Caffeine ninety milligrams—caffeine, citrate,—thank you.

Q. Then what?

A. At the end of ten or fifteen or perhaps twenty seconds, the contractions of the heart are shown to have become very much more pronounced; that is, the heart does not always contract completely shut, there is always a hole inside where there is blood, but under the drug it shuts down more completely just as if you would shut your fist more tightly, and that is shown by the lines reaching down towards the base line.

Mr. Hirsch: We object to that question until after Mr. Miller asks whether the citrate has any effect. He does not also say whether the opening of the dog's heart would have anything to do with it, and he does not say how it was given.

The Court: That may be brought out on cross-examination.

A. (Continuing) Subsequently, I should say at the end of a minute or a minute and a half, the heart becomes irregular and still contracting with stronger beats more forcible than under the condition we call normal or before the drug was injected. It is apparently stronger but irregular, so that some of them are apparently weak.

BY MR. MILLER:

Q. In this connection state whether or not you first observed the heart beat without the condition of caffeine or the administration of it, and if you say you did and it is recorded, explain in that connection at what point the caffeine was administered or received.

A. The normal is always observed during experimental work. We have to observe that to see whether the drugs have any effect. I could not say how long the normal was taken before the drug was injected, but I should imagine for some ten minutes, not from anything on the tracing, but as a general custom.

Q. Does the tracing show the difference between the heart beat before and after the drug was administered?

A. It does.

Q. At what part was the administration applied?

A. There is a signal mark—a white line which shows where the drug was injected and under that is written: "Caffeine citrate, 90 milligrams."

The Court: I think I am in error on that last ruling. I think before that goes to the jury you should show that the citrate of caffeine is not different.

Mr. Miller: I hardly thought that would be controverted. Do you make any question on that?

Mr. Sizer: Certainly.

BY MR. MILLER:

Q. What is the portion of caffeine in citrate?

A. About firty per cent.

Q. Of what does the remainder consist?

A. Citric acid, I think, but I am not very sure. That is a pharmaceutical matter.

Q. Is there anything in this citrate of caffeine that would have produced the effect that you have recorded on these tracings so far as you know or have learned by either your investigation, research or reading?

Mr. Sizer: I object, the witness has not stated that he knows what citrate of caffeine is.

The Court: Ascertain whether he is prepared to state.

The Witness: I have observed the formula, Mr. Sizer. I should say the formula observed—though I cannot state the exact ingredients—that it contains nothing but citric acid and caffeine which would have the effect—or might have the effect.

BY MR. MILLER:

Q. You are a pharmacologist, and speaking from the standpoint of a pharmacologist, would the effects which you have described result from the administration of this acid, citric acid, that you speak of.

A. It would not.

Mr. Miller: Now, I submit that he is qualified to speak as to the tracing.

The Court: You may proceed.

BY MR. MILLER:

Now, Doctor state whether or not you have ever made any experiment with caffeine on mice.

A. I have.

Q. Or any other form of animal life?

A. Also on guinea pigs.

Q. State whether or not you determined the lethal or deadly or fatal dose, as respects both.

A. I determined the least amount of the drug to kill.

Q. In the instances where you have experimented?

A. Yes, sir.

Q. What did you find that to be — what did you find the lethal dose in mature mice and also in mature guinea pigs under normal conditions?

A. That is a rather hard question of calculation. For mice it is 7-10ths of a milligram per gram weight.

Q. How much is it per pound?

A. Pound of mice?

Q. Yes.

A. I would not swear that these are absolutely correct, but I should say it was in the neighborhood of five grains.

BY MR. SIZER:

Q. Do you mean five grains to the pound?

A. I am not very good at figures.

Q. I did not catch the quantity.

A. That is what I answered, but I am not sure it is exactly correct.

BY MR. MILLER:

Q. Just verify that.

A. For mice, 7-10ths of a milligram per gram weight, and that is the way I figure it out.

Q. What is it in the case of a guinea pig?

A. Five-tenths of a milligram per gram weight.

Q. Were those experiments on frogs made for the purpose of testifying in this case, or wholly independent of this?

A. The frogs as recorded here, although I have done many others previously, were for the purpose of testifying in this case.

Q. For determining the exact effect of caffeine?

A. Yes, sir.

Q. State whether or not that was in accordance with your previous experiments.

A. It was.

Q. Now, taking the lethal dose for mice and for guinea pigs, I will ask you if you are prepared to give an opinion from your experimental work and your investigation and your observation and your research, as to the lethal dose for an individual and what is the comparative ratio as between mice and men, and guinea pigs and men.

A. Mice would be eighty times more resistant than man, and guinea pigs thirty-five.

Q. Taking as a standard for man — what amount for man?

A. The Allard case.

Q. How many grains?

A. Nine grains.

Q. Assuming the Zenetz case, 22 grains, extending over ten hours?

A. The ratio would be— mice, 35 times more resistant; guinea pigs, 15 times more resistant.

Q. State whether or not it is true that the lower forms of animal life are more resistant or resist more readily the

ravages or effects of caffeine than human life.

A. The rule with one exception is almost invariably so. The exception is the frog muscle, which is more sensitive.

Q. Are you prepared to state whether the use of caffeine in solution according to the formula that has been testified to by Doctor Fuller in this case would contribute to Bright's disease, and if so, why?

A. Under caffeine administration I am. Under caffeine administration albumen has been found in the urine casts or cylinders. This would be an indication of acute Bright's disease or inflammation of the kidney. On that ground I think that it might.

Q. What tissues are immediately affected and what ultimately affected by the administration of caffeine through the stomach?

Mr. Sizer: I noticed you were reading from some book, that the witness there was reading from some book, and I object to it.

The Witness: I was only reading from my notes,—the relative doses.

Mr. Sizer: I thought you were reading from some written statement.

The Witness: No.

Mr. Miller: I will ask you, Mr. Hacker, to read him my question.

(Thereupon the stenographer read the pending question, as follows: "What tissues are immediately affected and what ultimately affected by the administration of caffeine through the stomach"?)

A. I don't think I am prepared to state what effect caffeine would have on the stomach, but after absorption into the blood it would have the effect on three tissues after that.

BY MR. MILLER:

Q. Which?

A. The central nervous system, the heart and the kidneys.

Q. How does it reach those?

A. Through the blood, probably also has some action on the muscles.

Q. Are you the author or writer of a treatise?

A. I am.

Q. (Interrupting) Which I hold here, entitled: "The Influence of Certain Drugs Upon the Toxicity of Acetanilid and Antipyrine"?

A. I am.

Q. State whether or not you have made any experiments to determine whether the addition of caffeine in

cases where acetanilid or antipyrine or other drugs of that character are administered would have any appreciable effect.

Mr. Sizer: I object to that.

Mr. Miller: Well, if he objects to it I will withdraw the question.

BY MR. MILLER:

Q. Are you prepared to express an opinion as to what would be the effect of the administration of caffeine in doses from one to two grains to persons who are afflicted with heart disease?

A. Yes, sir; especially a certain form of heart disease.

Mr. Sizer: (Interrupting) I object to this. This witness has not qualified as a physician at all.

The Court: I do not think he is qualified, Mr. Miller.

Mr. Miller: He said he took a degree of Doctor of Medicine.

BY MR. MILLER:

Q. I will just ask you what experience you have and whether you think you are prepared to give an opinion. Give your experience.

A. My experience in that regard otherwise than that derived by reading is confined to my student days in which I saw pathological lesions of the heart.

Q. Has your reading along that line and your investigation been extensive or otherwise?

A. No, I think not extensive, but I think sufficiently to know what the effect of certain drugs would be under certain conditions.

Q. You say you were at Ann Arbor four years; what was the extent of your observation that you made there?

A. I saw post mortem examinations during two years, I could not tell you how many cases.

Q. Many or few?

A. Quite a good many.

Mr. Miller: I submit he is qualified.

The Court: I don't think this witness is qualified as an expert along this particular line, this last line.

Mr. Miller: We reserve an exception to that, your Honor.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You say your age is what, Doctor?

A. Thirty-four.

Q. And you graduated in medicine in 1904?

A. Yes, sir.

Q. And then took a course and graduated as B. A. in 1908?

A. Yes, sir.
Q. And you have written a book?
A. Not that I know of.
Q. Didn't you state you had written a book?
A. No, sir.
Mr. Miller: A treatise.

BY MR. SIZER:

Q. Just an article or treatise?
A. Yes, sir.
Q. And have experimented on guinea pigs and mice, and frogs, and have now reached the conclusion that the effect of caffeine taken through the mouth is the same as when administered directly to the muscle?
A. Yes, sir.
Q. Then that is your opinion?
A. Yes, sir.
Q. On what do you base that, Doctor?
A. From the fact that drugs taken by the stomach or given to the stomach, in part of these experiments, they were the same.
Q. How do you know that?
A. Perhaps I should say, have the same qualitative effect — I have seen it.
Q. Is it a fact that a great many substances are absolutely harmless, when taken into the stomach, and absolutely poisonous if taken into the circulation.
A. Not such a great many, just a few.
Q. Well, rattlesnake poison, for instance; take that one.
A. I would not want to have an ulcer in my stomach — to take rattlesnake poison into my stomach.
Q. Isn't it a fact that rattlesnake poison taken into the stomach is harmless and that it is absolutely poisonous when injected?
A. Yes, sir.
Q. Is it a fact that diphtheria germs are absolutely harmless when taken into the stomach?
A. I would not want to say.
Q. Don't you know?
A. I am not a bacteriologist.
Q. Your experience as a bacteriologist does not enable you to testify on that point?
A. No, sir; I am not qualified to speak as a bacteriologist.
Q. And yet you undertake to state that the effect of caffeine taken into the stomach is the same as when administered hypodermically into the vein?
A. Yes, sir; that is my opinion ——

Q. (Interrupting) How about the white of egg, is that harmless when taken into the stomach?

A. Yes, sir.

Q. You say it is harmless when taken into the stomach?

A. Yes, sir; under ordinary conditions.

Q. Is it poisonous when taken into the veins?

A. Under certain conditions, yes.

Q. Isn't ordinary milk frequently poisonous when taken into the veins?

A. Yes, under certain conditions.

Q. If you injected it into the veins is it a poison?

A. If you will prescribe the dose — state the dose, it might be under certain conditions.

Q. Well, under what conditions?

A. I am not able to state that.

Q. Will you state under what condition milk could be safely injected into the veins?

A. I should say an injection, one injection, would not be serious.

Q. Suppose you took two injections?

A. It might be.

Q. Would it or not?

A. I am not prepared to say.

Q. Is milk when taken into the stomach not only harmless but an article of food?

A. Under certain conditions.

Q. How do you know that the same conditions do not apply to caffeine?

A. I have given caffeine by the mouth and by injections, and the effects are the same.

Q. Did you ever take caffeine by injection?

A. Myself — no, sir.

Q. You have taken one dose of two grains?

A. Yes, sir.

Q. And that is the full extent that you have had to do with it?

A. Yes, sir; with caffeine.

Q. Now, Doctor, don't you know this, that as a matter of fact, when you take caffeine in the system it does not get to the muscles at all as caffeine?

A. No, I think I do.

Q. Do you know whether it does or not?

A. I think I know it does.

Q. Is it a fact that dimethylated into theobromine and para-xanthine?

A. No, sir ——

Q. (Interrupting) How do you know?

A. By authorities.

Q. Now, what authority do you base the statement on that caffeine when taken into the stomach gets to the muscle as caffeine?

A. I base that statement upon my reasoning from the fact that it is circulated in the blood.

Q. I thought you said you got it from authority. What was the authority?

A. Well, if you will state ——

Q. (Interrupting) The authority that states when caffeine gets into the stomach it gets to the muscle as caffeine.

A. I would not want to say it in that way ——

Q. Don't the authorities all say that when caffeine is taken into the system it is broken up and demethylated and transformed into lower xanthine products, and after that into simple xanthines?

A. In part.

Q. Now then, suppose you took a dose of caffeine into the stomach, what proportion of that caffeine would be dimethylated before it got to the muscle?

A. I don't know.

Q. Is it a fact it would practically all be?

A. I think not.

Q. Do you know, Doctor? Do you know?

A. Yes, I think I do.

Q. Well, if you know why can't you tell us how much gets there?

A. Well, the precise amount, the breaking down in so far as we know, and we know and the evidence is that part is not broken down, indicates it is with difficulty broken down,—which would lead me to the conclusion it circulates in the blood for a long time.

Q. On what do you base the statement ——

A. Part of it is not broken down when excreted.

Q. You base that statement on an authority?

A. Yes, sir.

Q. What was the authority you refer to, who made such statements as that?

A. I would not want to say for sure, but I think Cushny does — I know I have read it.

Q. You know you have read it somewhere, but you do not know where?

A. Yes, sir.

Q. Did you ever find any caffeine in the muscle after it had been taken by way of the mouth?

A. No, sir.

Q. You have made no experiments ——

A. I have seen the effects of caffeine.

Q. (Interrupting)—on these animals that you applied it to the muscle?

A. Yes, sir.

Q. You applied citrate of caffeine, as I understand you.

A. Yes, sir.

Q. Citrate of caffeine is a compound of citric acid and caffeine?

A. Yes, sir.

Q. Half and half — what is the effect of any acid applied directly to the muscle?

A. In that solution it would have some effect, but practically a negligent effect.

Q. Some effect?

A. Yes, sir.

Q. Well, how much effect? How much do you mean by some effect?

A. Well, as compared with caffeine I should say it was infinitesimal.

Q. Have you ever tried it?

A. Yes, sir.

Q. Have you applied citric acid direct to the muscle?

A. Yes, sir.

Q. What effect did that have?

A. Had an irritant effect.

Q. An irritant effect?

A. Yes, sir.

Q. It had the effect to contract the muscle violently?

A. I would not want to say violently contracted.

Q. Well, it contracted it, however?

A. Yes, sir.

Q. So when you applied the citrate of caffeine it also contracted the muscle?

A. No, sir; it contracted it but it also caused it to go into a different state.

Q. To do what?

A. To go into a condition that we call rigor mortis.

Q. Rigor mortis?

A. Yes, sir.

Q. Is it a fact, Doctor, that citric acid in that citrate of caffeine would very materially strengthen and make more powerful any effect that might be produced by the caffeine itself?

A. No, sir; I think not.

Q. Why didn't you use the simple caffeine?

A. It is not soluble — it is soluble.

Q. Why, then, if you wanted to get the results of caf-

feine itself, why didn't you take a solution of caffeine and apply it?

A. In the laboratory was a bottle of citrate of caffeine.

Q. Now, Doctor, you are undertaking to make an experiment to show and demonstrate the action of caffeine on the naked muscle, why didn't you use caffeine?

A. Because there was a bottle of citrate in the laboratory.

Q. Just because there was a bottle of it in the laboratory?

A. Well, there was a bottle there and I just used it.

Q. And yet you knew, Doctor, when you did that, that citrate of caffeine would act more powerfully than caffeine itself?

A. No, sir.

Q. Didn't you tell us a while ago — make an answer to that effect?

A. If I did, I did not intend to.

Q. Well, you have stated that the citrate itself would irritate the muscle?

A. Yes, sir.

Q. Now, knowing that, Doctor, if you wanted to make a fair test of the action of caffeine, why did you put it in combination with a substance that you know was irritating, why didn't you go and get the simple caffeine itself and apply it?

A. Well, the effect of the citrate in the solution used was infinitesimal.

Q. Why didn't you go and make a fair test and get caffeine—you knew the citrate was irritating.

A. Yes, sir.

Q. Well, you could have gone and gotten the simple caffeine.

A. Well, if you knew the Government service and the red tape necessary to get a bottle of caffeine you would know that it would be difficult.

Q. Were you instructed, Doctor, to make these experiments with respect to caffeine or citrate of caffeine?

A. No, I was not instructed in any way.

Q. How did you come to do it?

A. I wanted to find out.

Q. When did you make these experiments?

A. I think it was a few days ago—I think the date is on the tracings.

Q. How was that?

A. Within the last week or two.

Q. You made that with particular reference to this case?

A. Yes, sir.

Q. When you knew you would be a witness?

A. Yes, sir.

Q. And when you knew the question in issue was the effect of caffeine?

A. I knew in a general way the question at issue—I didn't know exactly.

Q. And about five cents would have bought all the caffeine you would have needed for that experiment, would it not?

A. I dare say.

Q. Well, five cents would buy plenty of caffeine to put into the muscles of several animals of that size, that is, of the size you were experimenting on?

A. Yes, I guess so.

Q. I would like if you would state again what that experiment was you made with the dog.

A. You say you want me to go through a description of that experiment again?

The Court: We will take a recess for twenty minutes.

(Thereupon, at twelve o'clock noon, the Court adjourned until 12:20 o'clock P. M. of the same day).

AFTER RECESS.

12:20 o'Clock P. M.

Court met pursuant to recess.

Present, same as before.

DR. WORTH HALE,

resumed the stand for further examination and testified as follows:

CROSS-EXAMINATION Continued

BY MR. SIZER:

Q. All right: you may answer my question.

A. I didn't understand exactly what you wanted, Mr. Sizer. Did you want me to go through a description of all the experiment?

Q. Yes; that is what I wanted you to do.

A. After the dog was anestheticized or put to sleep, so that the operation will not cause any pain, the chest cavity is opened. I will state before this the respiratory apparatus is arranged so that artificial respiration can be carried on.

Q. In other words, you pump air into him while you are doing all this?

A. Yes, sir.

Q. You do that?

A. Yes, sir; and then after the heart is exposed, a lever

is tied to the heart muscle directly by putting a thread through the muscle with a needle—sticking a needle through the muscle and fastening it——

Q. (Interrupting) You mean the muscle of the heart?

A. Yes, sir.

Q. What was it you used as an anesthetic?

A. Morphine and cholorotone.

Q. Are both of them very powerful physiological agents?

A. They have some effect.

Q. Well, they have a powerful effect?

A. No, not on the heart.

Q. Do you think it does not?

A. It will if it is in larger doses than we use.

Q. Well, chlorotone?

A. It will in much larger doses than we use.

Q. Well, you gave this dog a sufficient dose to put him to sleep?

A. Yes, sir; to render him unconscious.

Q. And this citrate of caffeine that you referred to as citrated caffeine is not citrate of caffeine?

A. No, sir; not the true salt.

Q. Citrated caffeine?

A. Yes, sir.

Q. It is simply a mixture of citric acid and caffeine?

A. Yes, sir.

Q. And isn't the citric acid free and the caffeine free?

A. I don't think I am prepared to state——

Q. Is there any chemical combination between the citric acid and the caffeine?

A. Well, there may be some chemical combination between them.

Q. Well, isn't it a very weak one, if any?

A. No, I don't know.

Q. And you simply took that bottle of stuff that you used in making these experiments, out of a bottle,—that citrate of caffeine, you simply took it out of a bottle?

A. Yes, sir.

Q. And you don't know whether it was citrate of caffeine?

A. It had that effect.

Q. It had that effect?

A. Yes, sir; it had the same effect that caffeine has——

Q. Well, how do you know it had the same effect?

A. I know it is the same substance.

Q. And that was taken out of a bottle that you say was sitting there in the laboratory?

A. Yes, sir.

Q. Where did you get it?

A. Got it in a case where the alkaloids are kept.

Q. As a matter of fact, you don't know anything about the preparation of the caffeine or citric acid in that mixture or whether there was any caffeine or citric acid except from the label?

A. I didn't analyze it.

Q. Well, you used that in all these experiments?

A. Yes, sir.

Q. Now, did you use an anesthetic with the other animals?

A. No, sir.

Q. How did you handle that frog that you spoke about?

A. It was killed by pithing.

Q. That is by punching an iron rod up through it?

A. Destroying the brain and the spinal cord.

Q. And running an iron rod up through him?

A. It might have been a match.

Q. Do you know?

A. I don't know whether it was a match or not.

Q. Didn't you run an iron rod clear through the whole length of the frog?

A. I could not say whether I used a match or an iron rod.

Q. Well, you killed the frog?

A. Yes, sir.

Q. And then applied this stuff what you call citrate of caffeine to his muscle?

A. I did.

Mr. Sizer: Now, may it please your Honor, we move to exclude the testimony of the witness as to experiments as to animals, because, in the first place, he used some material out of a bottle and he does not know what was in there and does not know whether it was citrate of caffeine or not; and, secondly, if it had been citrate of caffeine, it is a mixture of some other substance which the witness admits has an irritating effect on the muscle and that would not be, we submit, a fair test; and, in the third place, he admits that the affect of caffeine when applied directly to the muscle is different from the effect as taken in the mouth, because when taken into the mouth a large part is eliminated and does not reach the muscle as caffeine, and he does not know how much does reach the muscle, and furthermore, so far as the dog experiment is concerned, he gave him no more morphine and chlorotone in addition to the caffeine, both of which he says are powerful physiological agents.

The Court: I think that under all the circumstances

which these experiments were conducted, they are not sufficiently analogous to the matter that we have under investigation—and I exclude them.

Mr. Miller: As to one feature, there, I wish to ask him before having your Honor rule, and that is whether or not——

The Court: (Interrupting.) I don't think that this witness has qualified sufficiently to show that the effect of the substance that was applied to th muscles by him is the same as the effect of caffeine admi stered by drink —the degree of relevancy with which it should be admitted.

Mr. Miller: Well, I wish to ask him, your Honor—

The Court: (Interrupting). You may ask him on re-examination.

Mr. Miller: Very well.

Mr. Sizer: I thought you wanted to ask him something——

Mr. Miller: I want to ask him about the morphine.

The Court: I did not base it on that, I based it on the fact he used citrate of caffeine combined with citric acid, which the witness has stated would have a direct effect on the muscles, irritating effect, and not shown to be analogous to the action of pure caffeine when taken into the stomach in the form of a drink.

Mr. Miller: On that point, I give notice that I will wish to interrogate this witness as to the usual experiments in order to ascertain the effects of caffeine, and to show by him that the customary method is to employ a sufficient quantity of——

Mr. Sizer: Well, whatever the gentlemen may do——

Mr. Miller: I am not talking about the Government, I am speaking generally, in laboratory work, throughout the world.

Mr. Sizer: Well, that would not make it competent—

Mr. Miller: We propose to show that the method adopted by him is the accurate one by showing that this is the standard test, and before your Honor definitely rules, I would like to ask him about it.

The Court: Well, you may ask him further on re-examination.

CROSS-EXAMINATION:
BY MR. SIZER:

Q. I believe one time you took caffeine, you say, a two grain dose?

A. Yes, sir.

Q. That was on one occasion when it produced a confusion of ideas?

A. Yes, sir.

Q. Was that the only time you ever experienced a confusion of ideas, Doctor?

By Mr. Miller: Now, I object to that.

The Court: The objection is sustained.

Mr. Sizer: Well, I want to know how that caused confusion of ideas, in that particular case, that it resulted from two-grain dose of caffeine.

The Court: Well, that is excluded by the Court.

Mr. Sizer: That statement was made, your Honor.

The Court: Yes.

Mr. Sizer: It is a statement of his opinion.

BY MR. SIZER:

Q. I will ask you this, Doctor, how soon after you took the two grains, the two-grain dose of caffeine, was it you experienced the confusion?

A. I should say in half an hour.

Q. That was certainly a very abnormal and unusual result following the taking of but two grains of caffeine?

Mr. Miller: He has not qualified to speak in that respect. I have not caused to make him an expert in that behalf. If counsel agrees he is an expert, then I will have no objections.

Mr. Sizer: Well, I don't know.

The Court: You can ask him if it had any other effects on him.

The Witness: I have never given caffeine to patients, nor have I taken any caffeine myself otherwise.

BY MR. SIZER:

Q. So you are not prepared to say whether or not that was an unusual——

A. (Interrupting.) It is described as a result that often occurs.

Q. How is that?

A. It is described as a result that often occurs in literature.

Q. That particular result you experienced, the stimulation that followed the taking of the two grains of caffeine, why, that was a very abnormal and unusual result from a dose of caffeine of that size, was it or not, Doctor?

A. I am not prepared to say.

Q. In testifying as to the relative resisting power of men and mice, from the effects of caffeine, you based your statement solely on the Allard case?

A. No, sir; also on the Zenetz.

Q. The Allard case was a case where a woman took how much?
A. Nine grains.
Q. Nine grains.
A. Yes, sir.
Q. What was that substance?
A. Reported to be caffeine.
Q. Does the report indicate that she took anything else besides cafefine?
A. I do not know.

BY MR. MILLER:

Q. Is it not a fact that the report shows that she took theophyllin?
A. With reference to this case, it says caffeine there.
Q. Does it say anything about theophyllin in the original report?
A. I have never seen the original report.
Q. What report was it you saw?
A. Reported by Sollmon.
Q. You only base your statement on what Sollmon says about that lady's case and not from seeing the original report?
A. I have not seen the original report.
Q. Zenetz' case was the one referred to yesterday by Doctor Tyrode where the woman took about 22 grains of caffeine.
A. It was referred to before in this case somewhere.
Q. That was where the woman was unwell and took this caffeine?
A. Yes, sir.
Q. Did you ever read the original of Zenetz' case?
A. Yes, sir.
Q. That was a French report?
A. A German.
Q. Did you read the original report or a translation?
A. The original report.
The Court: Did the word "unwell" have any technical signification in that original report?
The Witness: Yes, sir.
Q. What is the word?
A. I do not recall.
Q. How do you know what the proper translation is?
A. I have to read German with a dictionary.
Q. You do not recall what the word was?
A. No, sir.
Q. Is it not a fact that that word is a word that might be used, just as simply as the word "unwell" in

English might apply to an ordinary condition or to a peculiar condition of a woman?

A. Sometimes the finer shades of translation are beyond me, not being a native German I would not want to say.

Q. In fact, you are so unfamiliar with this particular report that you do not remember the word used?

A. I do not say that I am unfamiliar, but I do not remember the word.

Mr. Hirsch: The word is *nicht ganz wohl,*—are those the words?

The Witness: They may be; I cannot tell.

Mr. Hirsch: What would you translate that?

The Witness: Not entirely well.

BY MR. MILLER:

Q. You were asked for an authority as to whether or not caffeine taken was excreted and thrown off in the urine.

Mr. Sizer: I didn't ask any such question.

Mr. Miller: I think you did.

Mr. Sizer: I asked him if he knew any authority that sustained him in the statement that caffeine applied to the muscles had the same effect as if taken in the mouth.

The Witness: I think it was my answer that said it was found in the urine.

The Court: You may look that up later and put him on the stand if you find that he asked any such question, but my recollection is that Mr. Sizer's question was limited just as stated by him.

Mr. Miller: I will have that looked up.

(Witness Excused).

DR. WILLIAM SALANT,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. What is your age?

A. Forty.

Q. What is your profession?

A. I am a pharmacologist.

Q. Of what institution or institute are you a graduate?

A. I graduated from Cornell University in the year 1894 with the degree of Bachelor of Science.

Q. Of Cornell University?

A. Cornell University, Ithaca, New York.

Q. And of what others?

A. I then studied biology; that is, natural sciences,—at Columbia University, New York City, for one year. Then I entered the medical department of the same university in 1895 and graduated from a regular course which was four years, making it 1899.

Q. What course did you take?

A. I hold two degrees, Bachelor of Science from Cornell, and Doctor of Medicine from Columbia University.

Q. What practical experience have you had and what has been your course of work and study since that time, since your graduation?

A. In the medical department for two years I devoted my time between the study of physiology at Columbia University and practical medicine at Mount Sinai Hospital.

Q. Located where?

A. New York City. For some time I had charge of the children's clinic at Mount Sinai.

Q. As such, what were your duties?

A. Physical examinations of the patients that came into the clinic.

Q. Did you have many or few patients?

A. Quite a good many; thirty a day.

Q. Did you have any connection with the Rockefeller institute, and if so, what?

A. From 1901 to 1907 I held the position of Fellow of the Rockefeller Institute in New York City. During that time for one year I taught physiology in the medical department of Cornell Medical School in New York City; and in 1905 to 1907 I taught physiological chemistry in Columbia University.

Q. What is physiological chemistry? With what does it deal?

A. The study of life processes in the body by chemical methods.

Q. That is the stimulation or preservation of life by chemical processes?

A. Yes, sir; you might call it that way.

Q. Now, what other experience have you had as demonstrator or teacher or student or pharmacology, physiological chemistry, or both?

A. In 1907 I was offered and accepted a position as professor of physiological chemistry and pharmacology at the University of Alabama.

Q. Where is that located?

A. Tuscaloosa, Alabama. In 1908 I accepted a position as pharmcologist of the United States Department of Agriculture in the Bureau of Chemistry, and was put in charge of the pharmacological laboratory, which posi-

tion I hold at present.

Q. Have you held that position continuously since?

A. Yes, sir.

Q. Are you a member of any societies engaged in biological research or pharmacological research, and if so, what?

A. I am a member of the following societies: The American Physiological Society, the American Society of Biological Chemists, the American Chemical Society, the American Society for Pharmacological and Experimental Therapeutics, the Society for Experimental Biology and Medicine, holding its meetings in New York City, and am also a member of the scientific society called the Sigma Psi of Columbia University.

Q. I will ask you whether or not you have contributed to the medical journals of the country from time to time articles dealing with these subjects?

A. I have contributed to the following: The American Journal of Physiology, the American Journal of Biological Chemistry, the American Journal of Pharmacology, the Journal of the American Medical Association, the proceedings of the Society for Biological and Medical Research; also some foreign publications.

Q. Some foreign publications?

A. Yes, sir; German publications,—both of them.

Q. Published in a foreign language?

A. Published in German.

Q. State whether or not you have been on the staff of any of these periodicals during these times.

A. I am a colaborator of the Journal of Pharmacology and Therapeutics.

Q. In the United States?

A. Yes, sir.

Q. Are you acquainted with the substance known as caffeine?

A. Yes, sir.

Q. I will ask you to state whether or not you have done any experimental work with it, and if so, over what period and with what character of animals, if any.

A. I have experimented with caffeine, or rather, more correctly I began my experiments with caffeine in January, 1909, and I have been experimenting practically up to date, up to about two or three weeks ago. I experimented on the following animals; Rabbits, guinea pigs, white mice, rats, pigeons, dogs, cats, frogs.

Q. How many of these animals did you experiment with or on?

A. Not less than six hundred, I know.

Q. What was the object of your experimentation? Was it in any ways connected with the Coco-Cola controversy?

A. I had absolutely nothing whatsoever to do with the Coca-Cola experiments, and I have made my experiments without any reference to the case whatsoever.

Q. What was the object of your experimentation?

A. The object of my experimentation was to get more accurate information concerning the drug caffeine.

Q. State if you experimented with a view of ascertaining, and if you did ascertain, what was the lethal or fatal dose of caffeine administered by way of the mouth to any of these animals. Take for instance, the case of a rabbit.

A. I would have to refer to my notes for these because I cannot at present remember it, as I sometimes do.

The Court: Define what you mean by a lethal dose.

Mr. Miller: I said lethal or fatal dose.

The Court: I thought you just said lethal, but if you said fatal, say within what time.

The Witness: You want the fatal dose first?

BY MR. MILLER:

Q. You may give the fatal dose to a rabbit and then tell what you mean by a fatal dose. That is, when it will produce death, within what time administered by mouth.

A. The fatal dose, the smallest dose required to produce death, say within three or four hours, that is what I mean by a fatal dose.

Q. Well, what did you find that to be?

A. I found that to be rather dependent upon the method of administration.

Q. Suppose it were given by the mouth?

A. By the mouth I found from two and a quarter to two and three-eights grains per pound; that is, for every pound of rabbit I had to feed or give two and a quarter to two and three-eighths grains—had to administer it, which is the correct word to use.

Q. If the rabbit would be fed caffeine in that way, state whether or not this substance was eventually brought in contact with the circulatory system and also the muscles, and if so, explain why.

A. It must be brought in contact because the symptoms—it cannot produce systems unless it enters the circulation and is brought in contact with the various tissues and organs of which the body is composed.

Q. Is it or not in that way brought in contact with the muscles?

A. It most certainly must be so. There is no question about that, although you cannot see it.

Mr. Sizer: I do not understand the witness to be qualified as an expert on that proposition. He just simply says it must have been brought in contact with the muscles and I submit that is not proper.

The Court: Have you made any experiments to determine whether so administered it does come in contact with the muscles?

The Witness: I had some evidence, some symptoms show it must be so. I will bring that out later.

Q. What are those symptoms which show or from which you state, in your opinion, it is brought in contact with the muscles.

A. The evidence I have for this is the following: In the first place, caffeine produces two kinds of convulsions. It produces what we call clonic convulsions, that is spasms, then a rest and then a spasm—alternating. It also produces another form of convulsion, a tonic rigidity, stays contracted. That is one evidence. The second evidence that it must be brought in contact with the muscles is this. Rigor mortis sets in with great rapidity with animals which are killed by caffeine. That has been the common observation in my laboratory, even my helpers know that.

Q. State whether or not it is necessary for caffeine to be brought in contact with the muscles to produce those symptoms which you have described.

A. It would follow logically that it is.

Q. What if anything did you determine as to the amount of caffeine that would produce symptoms that were referable to its effects on the nervous systems and the muscles as to dosage when injected into the veins—any of a rabbit?

A. In a rabbit, I found that three-tenths of a grain per pound of animal injected into the veins of the ear—no anaesthetic was given—injected into the veins of the ear, produced symptoms.

Q. If the caffeine be administered by mouth, does it reach the veins?

A. It certainly does.

Q. Did you or not inject caffeine into the peritoneal cavity?

A. Yes, sir; I did.

Q. If it be administered by mouth, does it reach the peritoneal cavity?

A. I don't know.

Q. You are not prepared to say as to that?

A. I am not prepared to say as to that.

Q. Now what, if anything, did you observe as to the effects of repeated doses where it was given daily?

A. The effect of repeated doses on what animals, rabbits?

Q. Yes.

A. I found three-quarters of a grain per pound given daily, either by mouth or sub-cutaneously, the following results were obtained: First, impairment of appetite and loss of flesh and strength. Then on the 9th and 16th days, some cases the ninth, some cases the sixteenth, from the ninth to the sixteenth days of the experiment, death.

Q. Was there any regularity in the time when the rabbits would die, or did that vary?

A. Repeat the question.

Q. Was there any regularity or sameness as to the length of time when the rabbits, which were fed on caffeine, would die, or did the time or dates of death vary from the beginning of the feeding?

A. It varied. Some, it was less than others; and some, it was only nine days, and some sixteen. There was quite a number which died after one or two days.

Q. State whether or not the diet appeared to be a factor in connection with the caffeine as to its influence—toxic influence on the human system.

A. On the human system?

Q. I will say on the animal system, you experimented only on animals.

A. Diet seems to be a factor in the administration of caffeine for this reason. Those animals that were fed oats and the same doses of caffeine showed a great deal worse than similar animals which were fed carrots.

Q. What was your conclusion from that if there be a scientific opinion or conclusion that you could draw?

A. The conclusion that I drew from it is the following: We found that is the pathologists in the Bureau of Animal Industry have reported in practically all the cases—

Mr. Sizer: We object to that.

The court: The exception is sustained. You can state your own conclusions.

BY MR. MILLER:

Q. That is what I am asking. What conclusion you drew as respects the carrot diet and the oats diet.

A. The conclusion I reached from that is this: That in the carrot diet, the body accumulates a large amount of reserve material commonly known to physiologists as glycogen, a sort of animal starch. This reserve material is usually drawn upon by animals during life, whether in fed or in a condition of starvation. It applies in this work because the animal would exist longer on this diet, having the reserve material, than on oats which favor or which

cause a much smaller deposit of glycogen so that there is a much less reserve material.

Q. Where is that reserve force stored?

A. It is stored as glycogen.

Q. But where, what function is it stored in?

A. In the liver.

Q. Is it likewise stored there in man?

A. It is stored in all animals that have been examined also in the muscles.

Q. Now, state whether or not the feeding of carrots would serve to increase this reserve force on storage?

A. It certainly would.

Q. State whether or not you made any observation as to the effect of a dose that was not large enough to produce death or to produce even symptoms of nerve disturbance when given once a day, where you would give it for several successive days, and if so, what you observed in that respect.

A. Please repeat the question.

(The question was read by the stenographer as follows: "Q. State whether or not you made any observation as to the effect of a dose that was not large enough to produce death or to produce even symptoms of nerve disturbance when given once a day, where you would give it for several successive days, and if so what you observed in that respect.")

A. I observed that if given for several successive days, a dose that will not produce any symptoms the first day — any visible effects the first day — would so after several days, say on the third day, for example.

Q. That would be of what nature, this effect you observed?

A. That looks like a cumulative effect.

Q. Describe its effects, how it visibly appears.

A. It produces nervousness, nervous irritability, muscular tremor, disturbance of the muscular functions you might call it.

Q. Now, if an animal received this dosage which did not produce any observable effect in the first instance, if he were in good health, and another received a like dose which was in poor health, or below normal, so to speak, what if anything did you observe as to the different effects, if any there were?

A. I found that animals that had been weakened for some reason or other, resisted caffeine much less. A dose insufficient to produce any visible effect on a well animal would produce such an effect when the condition of the animal had been deteriorated considerably—run down.

Q. Did you or not find that eventually the minimum fatal dose might be increased without producing death?

A. In a number of animals, rabbits—I found that one-third of the minimum fatal dose had produced death. It was found that pathological changes were present in such animals which leads me to conclude that in the presence of pathological condition, the toxicity of caffeine is increased. Furthermore, I can recall to my mind one case at present of a rabbit which was suspected of some pulmonary formulary disturbance. I gave him such a dose, one-third of the minimum fatal dose. He had violent convulsions. One hour later, he recovered from the convulsion and we found him dead next day. He had pneumonia.

Q. Did you make any observation to ascertain whether caffeine was a food that would sustain life when rabbits were undergoing a state of starvation, and if so, tell what you observed in that respect.

A. I have starved a large number of rabbits. That is to say, I did not give them any food for four or five days. At the end of this time I administered caffeine and I found that two-thirds of the minimum fatal dose produced death in a few hours, two or three hours.

Q. What were your conclusions from your observations and experiments as to whether caffeine was a food substance.

A. My experiences on this subject were as follows: I fed dogs on a constant diet, that is to say, I gave them the same diet which was a mixed diet, for quite a long period of time, three months. I examined the dog's urine, also his feces, to see how much nitrogen was eliminated. We also examined his food to see how much protein he took in.

Q. As a result of all this experimentation, did you or not reach a conclusion as to whether or not caffeine is a food value?

A. No, it is not a food.

Q. You reached the conclusion it was not a food?

A. I am positive caffeine is not a food on the basis of this experiment. It has no food value whatever. It does not act like it.

Q. Did you make any observations to ascertain whether the administration of caffeine or the consumption of caffeine in an animal, contributed to or increased the sugar in the urine, or disease of the kidneys known as diabetes or akin to that?

A. Yes, sir. I made a number of experiments on animals, rabbits, and also on cats. I found that if rabbits are fed carrots for a few days, three or four or five or given any other substance which contains sugar, such rabbits,

when given caffeine, will eliminate sugar in the urine.

Q. Now, if you fed these same rabbits those same substances without the caffeine, did you detect the presence of sugar in the urine?

A. I never found any sugar in such animals, and I have examined a great many of them, probably fifty or sixty, and that is a conservative estimate.

Q. What length of time is required to excrete or discharge the caffeine from the system, and how is it discharged or eliimnated?

A. The length of time required depends a good deal on the doses. A moderate dose, a dose which is not enough to produce symptoms, is eliminated in about twenty-four hours. Larger doses which do produce symptoms, take longer than twenty-four hours and it is eliminated partly—the result in the laboratory show it is eliminated, caffeine in the urine and in the bile.

Q. State whether or not it undergoes any process after it enters the body through the stomach when taken through the mouth, and if so what process or change is.

A. It is what we call demethylated. By demethylation is meant one of the methyhl groups is broken up and it is in this way reduced to a less poisonous substance, and eliminated as such in the urine.

Q. Have you or not discovered its presence in the urine.

A. We have discovered its presence in the urine.

Q. As respects other animals on which you experimented, say dogs, cats, and animals of that character, which you described a while ago, in a general way state what was the result of your experiment as to the effects of these substances on the muscles, on the tissues and on the circulatory system.

A. In a general way, the same as in rabbits. It required a smaller dose for the cat than for the rabbits, and a smaller dose for the dog than for the rabbit, about half of a fatal dose to the rabbit is fatal to the dog.

Q. The Court: By the pound weight?

The Witness: Yes, sir; and all the relations and conditions must be absolutely the same.

BY MR. MILLER:

Q. How was it with the guinea pig?

A.I will give you the exact figures. In the guinea pigs, a single dose from one to one and a fifth grain per pound per animal injected under the skin, or as we say in technical language, sub-cutaneously, produced symptoms or nervous irritability, and muscular irritability, sometimes referring to their effect on the system. A certain proportion

of guinea pigs died from the effects of certain doses. The smallest dose fatal to a guinea pig was about one and a half grains per pound an animal. That means this amount would kill practically every guinea pig.

Q. What character of animal life is the most senistive to the effects of caffeine, man, or the lower animals?

A. Man.

Q. Do you know in what proportion, or can you approximate the proportion of resistance or tolerance between man and other animals?

A. From my observations of people who take coffee, which in all probability contains about two grains caffeine to the cup, about three cups will produce symptoms in perhaps a great majority of adults, at least I have seen that in all individuals I have observed.

Q. In the case of children, is there any distinction between them and adults as to doses?

A. I have not seen the effects of coffee in children because I am on principle opposed—I have no occasion to notice it in children and I am opposed to giving it for experimental purposes. I have one boy and I don't allow him to take any coffee or tea.

Mr. Sizer: We object to that.

The Court: And the objection is sustained.

BY MR. MILLER:

Q. This animal experimentation, made with six or seven hundred animals, state whether or not that was performed by you or under your immediate supervision.

A. The great majority of them were performed by me. Some of them were performed under my immediate supervision, that is, I did the work, and practically in every case I watched the way the work was done. I always did some part of the work in every instance.

Q. In the demethylization of this caffeine, state whether or not the results which follow are a tax on the functions of the body, on the atomical structure, and if so how it taxes them?

A. I have no idea as to how it would tax them—I don't know whether it does any harm or not—I would not state—

Mr. Sizer: (Interrupting) I object to his idea.

The Witness: The reason is because we do not know; we do not know what happens.

Q. You do not know what happens in the taxation of the structure, but you know the effects?

A. We know it is demethylated.

Q. Do you know whether it requires force to dimethylate it?

A. I suppose——

Mr. Sizer (Interrupting) I object to that.

The Court: Yes.

BY MR. MILLER:

Q. Are you speaking from your pharmacological and physiological knowledge—or I will ask you speaking from your pharmacological and physiological knowledge, state whether or not, it does?

Mr. Sizer: I object to that; the witness has answered that he is unable to state. He has said he supposed it did. He said first that he did not know and then he said he supposed it did. Now, he wants to cross-examine his own witness.

Mr. Miller: I do not want to cross-examine him — I wanted him to give his reasons for stating that it does. He said that he had made a study of it for two years.

Mr. Sizer: He says he supposes so and so.

BY MR. MILLER:

Q. I will ask you whether or not you do believe it does, and if so, tell why?

Mr. Sizer: Now, I object to that.

The Court: Are you prepared to give scientific information from your readings and investigations, doctor?

The Witness: Your honor, it is purely an acedemic and theoretic question, I would rather not answer it at all.

CROSS-EXAMINATION,
BY MR. HIRSCH:

Q. Doctor how long did you say you were at Mount Sinai? The Hospital?

A. About two years. I would not call it practice, but had clinical work.

Q. That is the extent of your practice?

A. Yes, sir.

Q. Now, doctor you have said on your direct examination that you have experimented on rabbits, guinea pigs, white mice, rats, pigeons, dogs, cats, frogs, and possibly one other animal I didn't catch.

A. Well, I didn't quite understand you.

Q. I said on one other animal the name of which I did not get.

A. And Frogs, that is all.

Q. That is all?

A. Yes, sir.

Q. Now, doctor, are you prepared to state that in the case of each one of the experiments on the animals the amount of caffeine that you gave in each instance, how it

was given, whether it was given over a long period, or all of it given at once?

A. Yes, sir, I had two sets of experiments, in one of these experiments I gave one single dose; in others I gave it over a period of time.

Q. Did you do that with each and every one of these animals?

A. Each one, certainly.

Q. Did you give each and everyone of the animals that you have testified about this morning, caffeine by the way of the mouth?

A. I beg your pardon.

Q. How did you give the caffeine, by way of mouth, or did you inject it into the system?

A. I will tell you the whole thing we gave pure caffeine dissolved in water, I gave it in the following way: Some animals I gave it by mouth, some animals I gave it under the skin, as sub-cutaneously, that is two methods; third, into the peritoneal cavity, fourth, into the muscle, five, into the veins.

Q. Now, doctor, in these animals you say you found sugar in the urine. Did you give caffeine by itself?

A. Straight caffeine.

Q. Not caffeine salycitate?

A. No, sir; I did not.

Q. Now, in your animal experimentation—this is your article is it not?

A. Yes sir, that is my article.

A. Yes, sir, that is my article.

Q. Is it not true that in this article you state that experiments were carried out on rabbits, and show that caffeine when given in sufficient quantity produced gyclosuria?

A. Yes, sir.

Q. You do not say in any certain dose it produced gyclosuria, but just say in sufficient quantity?

A. I said given in sufficient quantity.

Q. What quantity would you have to give?

A. The smallest quantity was 70 milligrams per kilo, which means about one-third of a grain per pound.

Q. And the average rabbit weighs about what?

A. That would not make any difference.

Q. Just answer my question.

The Court: It has been shown that the average rabbit weighs about four pounds; that has been proven.

The Witness: Mine weighed from three to four pounds.

BY MR. HIRSCH:

Q. Now, what other animals did you experiment on,

that is in this report I have just produced to you, in which you tried to find sugar in the urine?

A. I don't remember that I reported on any other animals in that paper, but I did find it in cats.

You did find it in cats?

A. Yes, sir.

Q. You didn't find it in dogs?

A. No, sir, I did not.

Q. Could you not find it in dogs?

A. No, sir.

Q. Did you find it as constantly in cats as you did in rabbits?

A. No, sir, but when I did find it the quantity was very large.

Q. But you didn't find it as constantly in cats as in rabbits?

A. Well——

Q. And rabbits are more resistant to caffeine than are cats?

A. Yes, sir; they are more resistant to caffeine so far as the nervous symptoms are concerned.

Q. Doctor, I noticed you stated that in some of your experiments, I didn't quite catch which one, that certain pathological conditions were found?

A. Yes, sir.

Q. Who found them?

A. The gentlemen who testified here this morning, both of those gentlemen — Drs. Formad and Gallagher, and I think several others.

Q. You didn't find them did you doctor, yourself?

A. Well, I did but I would not consider my own findings conclusive, I am not a pathologist and I wanted to be followed up in that by men who were much more competent in that line than I am.

Q. You are testifying from their findings?

A. Yes, sir, but I have seen it myself—they demonstrated it to me on several occasions.

Q. You have seen it yourself?

A. Yes, sir.

Q. You would not base it on your opinion?

A. No, not on my opinion—not on my own observation of any pathologic effects——

Mr. Hirsch: We object to that.

Mr. Miller: You didn't let him answer he started to tell what the pathological conditions were.

The Court: I don't remember just what he stated.

BY MR. HIRSCH:

Q. Well, please state?

A. The pathological lesions were found by pathologists of the Bureau of Animal Industry, and were shown to me—I generally do that, I like to see them for my own satisfaction.

Q. Doctor, what is the proper food for a rabbit?

A. There are several different kinds of diet for a rabbit.

Q. I am asking you what is the proper food for a rabbit?

A. I do not know exactly which would be the proper one—you can give him hay, oats, carrots, I think hay and oats are probably the best ones; they are the best ones, I think.

Q. He would do better on them than anything else?

A. I didn't understand.

Q. He would do better on them than anything else?

A. Well, on carrots too.

Q. You were asked if caffeine was a food, what do you mean by "food?"

A. By food is any substance, when taken into body—that is one condition of course—that would sustain life for a long time.

Q. Is salt a food?

A. Yes, sir.

Q. And you would be able to sustain life for a long time on salt?

A. Well, I might modify that, salt is not a food——

Q. Could you sustain life over a long period of time by any kind of food?

A. Well, how long a time.

Q. You stated in your definition, you said that food was anything that would sustain life over a long period, what do you mean by that?

A. You can live, yes, for a long time, weeks and months, on bread alone; I know that to be a fact.

Q. Now, you say anything that will sustain life for a week or a month is a food then?

A. Yes, sir; that will sustaine life for a month is a food.

Q. Now, isn't it a fact that anything that will create energy and heat for the body is also a food?

A. Yes, that is what is meant by sustaining life. Sustaining life is that which creates energy and heat for the body—heat alone is not enough, some poisons create heat—

Q. Doctor, can you give me the chemistry of caffeine?

A. No; I know it is trimenthylxanthine.

Q. You can give me its chemical name?

A. How was that?

Q. The formula?

A .No, sir, I do not try to remember formulas.

Q. The chemical name is trimenthylxanthine?

A. Yes, sir.
Q. Can you give me the chemistry of theophyllin?
A. Dimethyl-xanthine.
Q. What do you understand by thepurin bases?
A. Thepurin bases are xanthine, hypo-xanthine——
Q. Any others?
A. Guanin, adonine, monexanthine, that is one xanthine—also included in that group.
Q. Doctor, is there any food under your definition that would be sustaining to life that you have mentioned there, is there any food that will not produce in the body xanthine?
A. I didn't name any food.
Q. Is there or is there not such?
A. Food that will produce xanthine?
Q. Yes, that will produce xanthines in the body?
A. Yes, sir.
Q. Name some of them?
A. Neuclein.
Q. Well, all foods contain nucleins—would you name some ordinary food containing nuclein?
A. Well, take meat.
Q. Meat will do that?
A. Yes, sir.
Q. Can you give me the hystology of the cells of the body?
A. I did not qualify as an anatomist.
Q. You can't give it then?
A. I would not care to give it because I am not an anatomist.
Q. The cells contain neuclein?
A. Yes, sir.
Q. And nuclein by oxidation form what in the body?
A. Nucleins form xanthine bodies.
Q. Is that by oxidation?
A. Yes, sir.
Q. Now, does that change from nuclein to xanthine—create heat and energy for the body?
A. Yes, sir.
Q. Therefore that is a food is it not?
A. Nuclein is a food.
Q. How?
A. Nuclein is a food.
Q. Now, doctor, you have been asked about the dimethylization of caffeine into the body. What is caffeine dimethylated in?
A. Caffeine is dimethylated into simpler bodies — and probably into xanthine, in foods as—

Q. (Interrupting) Is that xanthine found ordinarily—naturally in the body.

A. Yes.

Q. It is not reduced to urea?

A. Nobody knows anything about that—

Q. You don't know whether it is reduced to urea?

A. I don't think it is.

Q. Have you ever found in your animal experimentations any effect whatsoever on the urea——

A. Any effect on what?

Q. Any increase in or decrease in the amount of urea?

A. I did not.

Q. Then there is no effect on nitrogenous metabollism, is there?

A. Caffeine has no effect on nitrogenous metabollism.

Q. By what process, or do you know by what process the caffeine has its methyl groups taken off in the body?

A. Well, yes——

Q. By what process is caffeine the result of xanthine?

A. I do not know—there is no literature bearing on the subject.

Q. No literature bearing on the subject?

A. No, sir.

Q. But it actually does it?

A. Yes, sir.

Q. Xanthine is a normal constituent of the body is it?

A. Is it found normally in the body you mean?

Q. Yes?

A. Yes, sir.

Q. And therefore it is a normal constituent of the body?

A. Not necessarily.

Q. Why not?

A. Because, I recall now, some experiments done by some scientists who fed to animals food which did not contain purin or xanthine, and they reported they could not find xanthine bases in the urine.

Q. Doctor, as man normally exists and normally lives, is not xanthine produced in the body?

A. Yes, that is so.

Q. Now, doctor, you have stated in your examination that this harm might come because the body had to work to produce xanthine—you would get additional xanthine in the body?

A. I didn't say anything about harm; I just spoke of effects.

Q. Doctor, you stated just now there was a certain kind of food in some experiments you referred to, performed by

some scientists, what experiments were those, and what food was given?

A. The purin free diet—I think they fed that diet with tea and coffee excluded, and substances like tea and coffee.

Q. (Interrupting) Anything given except something like tea and coffee?

A. Tea and coffee and substances like tea and coffee and substances containing the same ingredients, purin derivatives were excluded from the diet, of such, and these experiments were carried out and the urine did not contain any xanthine bodies.

Q. Did they only examine the urine?

A. Yes, sir.

Q. That is all?

A. Yes, sir.

Q. You could not state whether was xanthine in other parts of the body?

A. The urine was examined fully.

Q. Doctor, when you gave caffeine by mouth what method did you use, how was it given?

A. By the stomach.

Q. I understand, did you use a tube?

A. Yes, sir.

Q. You did use a tube?

A. Yes, sir.

Q. How much of daily diet would you have to give a rabbit to have a well fed rabbit?

A. It depends upon what you give him.

Q. I mean of the two different diets you mentioned, doctor?

A. Now, of carrots, oh yes, about 500 grams of carrots per day in some rabbits.

A. Yes, sir.

Q. I am not pinning you down to any specific rabbits?

A. Well, about a pound of carrots per day.

Q. And as to the oats and hay?

A. I didn't keep track of that; I have no quantitive data —oats are scattered in the cage.

Q. In your experiments, did you measure the food that was given to these animals before you gave it to them?

A. Yes, sir; the carrots.

Q. All the food?

A. It depends upon what kind of an experiment—some of them I determined very carefully.

Q. Well, what was the nature of these experiments that you determined very carefully?

A. In the experiments as to the effect of caffeine on the metabollism of dogs, the dirt was very carefully analyzed.

Q. Doctor, when it is practicable to experiment on human beings, does not that show better results than on the lower animals or more scientific results?

A. You say when it is practicable?

Q. Yes.

A. I would like to experiment on the dog first.

Q. Now, on the question of metabollism, experiments, was it entirely practicable to experiment on these people—

A. (Interrupting) No.

Q. Now, there was no reason to go to lower animals to experiment as to metabollism?

A. Yes, there was because if people are habitues to the use of tea and coffee you get really all the effects of caffeine on them—they have a sort of pathological normal——

Q. Well, these animals never took caffeine, they would be an absolutely foreign substance to them?

A. Yes, sir.

Q. Now, you could have conducted metabollism experiments, and you could have obtained the normal of the individual, whether he was taking caffeine or not?

A. He would have to change his diet and have to make preparations for a long time?

Q. Well, you could have done it?

A. Yes, sir, it can be done.

Q. And it would show more exactly or accurately and scientifically the effects of caffeine on the metabollism as far as humans are concerned?

A. In a way it is more exact, but you could not control the conditions with human beings as well as you could in dogs.

Q. Well, they have been controlled in the Department of Agriculture have they not?

A. I don't know.

Q. You were not there when experiments were performed on human beings?

A. No, sir.

Q. And you know nothing about them?

A. Yes, I know they were performed.

Q. Well, doctor, the introduction of urea and sodium chloride produces gyclosuria?

A. Yes, sir.

Q. Sodium chloride is a comomn salt, is it not?

A. Yes, sir.

RE-EXAMINATION,
BY MR. MILLER:

Q. Your experience is that human beings cannot be controlled so well as animals?

A. Yes, that is my experience.

Q. Is urea contained in the body, Dr. Salant?

A. Yes, it is the end product of metabollism, what is rightly termed a poison—you have to get rid of it, the body has to get rid of it just like some of xanthine bodies.

Q. Like xanthine bodies are?

A. Yes, sir.

Q. Now, you referred to xanthine as a poisonous product. Is it a waste product that must be excreted or discharged?

A. As a rule — that is we know or as far as we know from human knowledge ——

Q. Has xanthine any useful effect and result upon the body as far as you know, or in the human organism, has it a beneficial result?

A. I don't know; I don't see why it should be useful.

Mr. Sizer: I object to the last part of that answer.

The Witness: I don't see why it should be useful or how it could be useful.

The Court: As explained, the exception is overruled.

BY MR. MILLER:

Q. State what effect the supply of food has on the replacing of tissue waste, the taking of food I should say?

A. Why, it helps to build up the tissues which are in the ordinary routine of life destroyed.

Q. Will caffeine do that, doctor?

A. I would not like to try it on myself or on any human being. I do not see how it could.

Q. Are you prepared to state as to the relative weight of the brain of man and of the rabbit?

A. The average weight of the human brain is fifty ounces,—the rabbit is four grams per kilo — I will have to make some mathematical calculations.

Q. Well, take a pencil and just do it there — you can do it in a moment — give the approximate weight of the rabbit's brain.

A. It is about 125 times greater in man than in rabbits.

Q. Than in rabbits?

A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. You do not mean to say that the waste product formed in man's body performs no beneficial function?

A. He has to get rid of it ——

Q. (Interrupting) I say does it perform any function when it is in the body?

A. Which one?

Q. Xanthine?

A. There is no work on record — no experimental work on record to show the pharmacological action of xanthine with the exception of one which has been practically forgotten, a small piece of research, I do not recall any now.

Q. It performs no beneficial function?

A. It is waste product.

Q. And performs no beneficial function?

A. Well, it may under certain conditions.

Q. Does it generally in so far as the kidneys are concerned, stimulate the kidneys to their natural activity?

A. That may be so, that is theory.

Q. That is a beneficial function?

A. Well, stimulating the kidneys in order to get rid of the poisonous action of the urea — it is beneficial substance, certainly.

Q. You know by comparison the weight of the spinal cord of the rabbit and the spinal cord of man, you could figure that out?

A. I am very poor at figuring.

Q. Well, could you figure it out?

A. I don't remember the weights ——

Q. Well, the rabbit's is much larger in proportion to that of man?

A. Yes, sir.

Q. And in the case of frogs it is tremendously greater?

A. Yes, I believe so.

Q. Don't you know that, doctor?

A. I do not.

(Witness excused).

Mr. Miller: I have these questions that were asked of Dr. Hale by adverse counsel, in which he says:

"Q. Now what authority do you base the statement on that caffeine when taken into the stomach gets to the muscle as caffeine?

A. I base that upon my reasoning from the fact that it is circulated in the blood.

Q. I thought you said you got it from authority? What was the authority?

A. Well, if you will state.

Q. (Interrupting) The authority that states when caffeine gets into the stomach it gets to the muscle as caffeine?

A. I would not want to state it that way.

Q. Don't the authorities all say that when caffeine is taken into the system it is broken up and demethylated and transformed into lower xanthine products, and after

that into simpler xanthines?

A. In part.

Q. Now, then, suppose you took a dose of caffeine into the stomach, what proportion of that caffeine would be demethylated before it got to the muscle?

A. I don't know.

Q. Is it a fact it would practically all be?

A. I think not.

Q. Do you know, doctor, do you know?

A. Yes.

Q. Well, if you know, why can't you tell us how much gets there?

A. Well, the precise amount, the breaking down in so far as we know, and we know and the evidence is that part is not broken down, indicates it is with difficulty broken down, which leads me to the conclusion it circulates in the blood for a long time.

Q. On what do you base that statement?

A. Part of it is not broken down when excreted.

Q. You base that statement on any authority?

A. Yes, sir.

Q. What was the authority you refer to who made such statements as to that?

A. I wouldn't want to say for sure, but I think Cushny does — I know I have it.

Q. You know you have read it somewhere, but you don't know where.

A. Yes, sir."

Now, I propose to prove by Cushny that this statement is true that counsel has asked him about, and I will ask to recall Dr. Hale for that purpose. That is what the stenographer has handed me of Mr. Sizer's cross-examination.

The Court: If there is no objection to it, it may be offered.

Mr. Sizer: I didn't understand that.

The Court: If there is no objection to it, it may be offered.

Mr. Sizer: I made my objections awhile ago, I do not recall anything about the presence of sugar in the urine in his statements ——

Mr. Miller: I didn't ask that question. He was asked on what authority he stated that caffeine was discharged in the urine, and that is the authority — that is at the latter part of the questioning as I read it.

The Court: Well, all he is asked about, he said the authority showed that caffeine — that it was broken down with difficulty, and that it circulated in the blood a long time.

Mr. Miller: And if you will read his next statement, he says it is discharged in the urine.

The Court: I notice he is asked on what he bases the statement that caffeine is not broken down when excreted. He says he bases that statement on authority.

Mr. Miller: I am trying to show that it was excreted in the urine, and Cushny is quoted in that connection.

The Court: If he has made that statement, and it is not contradicted it will stand. I do not think it proper to introduce the book to back him up in it.

Mr. Miller: I will respectfully refer your Honor to Wigmore on that subject, where it is stated that where a witness is presented with a treatise on a given matter, or asked for his authority on redirect examination, that same authority may be produced and he may be asked to give the extract on which he bases his statement.

The Court: You may hand those citations to me together with the questions you have there and I will rule on it in the morning.

Thereupon, the Court at two o'clock p. m., adjourned until 9 o'clock a. m., Tuesday morning, March 21st, 1911.

Chattanooga, Tennessee,
Tuesday, March 21, 1911.
Nine O'clock A. M.

Court met pursuant to adjournment.
Appearances, same as heretofore.

PLAINTIFF'S EVIDENCE CONTINUED:

The Court: I have examined the authorities to which my attention was called by Mr. Miller, on the question of evidence raised before adjournment, and I am of the opinion that they do not relate to a question of this sort, text books for the purpose of contradiction on cross-examination—and I adhere to the ruling of yesterday.

Mr. Miller: Note an exception.

The Court: The exception may be noted.

B. A. GALLAGHER,

recalled to the stand for further examination, testified as follows:

DIRECT EXAMINATION:
BY MR. MILLER:

Q. Dr. Gallagher, you stated yesterday that one of these rabbits that was sent over to the Bureau of Animal Industry, was chloroformed by you. Will you tell which one it was by number?

A. It was number 29.

Q. About what time did it arrive at the Bureau of Animal Industry?

A. It arrived sometime during the morning.

Q. According to your best recollection, about what hour?

A. I do not know that—possibly around ten-thirty.

Q. And how long before its arrival, or after its arrival until you chloroformed it?

A. I do not know just exactly. I post mortemed the animal sometime around eleven o'clock.

Q. After it was killed by the administration of chloroform, then you say you post mortemed it: How long until it was delivered to Dr. Formad to take out the brain?

A. After I got through the post mortem examination, it was turned over.

Q. Was time was that?

A. It was turned over to Dr. Formad to remove the brain. And I recall that he removed the brain before lunch.

Q. You recall that?

A. Yes, sir; I watched him.

Q. And you have luncheon about what hour?

A. Twelve o'clock.

Mr. Miller: That is all.

Mr. Sizer: Stand aside.

Mr. Miller: We will have Dr. Morgan for just a moment.

(Witness excused).

F. P. MORGAN,

re-called to the stand for further examination, testified as follows:

DIRECT EXAMINATION:

BY MR. MILLER:

Q. Dr. Morgan, in this exhibit that you filed yesterday containing a summary of the number of rabbits, what they were fed on, the date of feeding, the length of time they lived after the feeding began, I noticed at the bottom a cross-mark opposite the word "chloroformed," and also noticed a cross-mark opposite certain rabbits by number. What do they signify?

A. That signifies that the rabbits were sent over to the Bureau of Animal Industry from the Bureau of Chemistry alive.

Q. And the others?

A. They were sent over dead.

Q. And those that were sent over that were not dead, did they die naturally?

A. They did.

A Juror: Lesions in the body have been mentioned?

The Witness: Yes, sir.

A Juror: They are things in the body that produce disease?

The Witness: Lesions are the results in the body of disease. For instance, if the mucous membrane of the stomach is swollen and it is so found by looking at it, that would be said to be a lesion.

A Juror: And could you say what those lesions would lead to?

The Witness: Lesions are some indication as to the cause which produced them, that is to say, some are and some are not.

A Juror: Tell us, in your opinion, what diseases would be produced in your body or mine, or any other human body.

The Witness: I could not tell in every case because different diseases sometimes cause similar lesions. For instance, if you find an ulcer in the intestine, you might not be able to tell just by loking at it whether it was an ulcer caused by typhoid fever or an ulcer from some other cause. I do not say that you could not, but you might not.

A Juror: Might not such a lesion be caused from outside infection or from inside use of unhealthy diet?

The Witness: Lesions in the body, generally speaking, may be caused by anything which brings about a diseased condition in the body. They are the pathological and abnormal effects produced. It is a general term.

A Juror: Could it be caused by spurious or unhealthy food or disease infection from outside, or both?

The Witness: Yes, a lesion, so-called, might be caused by any of those things you mention, but the kind of lesion gives some indication, as a general rule, as to the cause that produced it.

BY MR. MILLER:

Q. These rabbits that were fed, state whether or not they were given the normal food aside from the ingredients shown in this exhibit.

A. Yes, sir; they were given normal food in addition to those materials mentioned.

Q. Would inflammation be termed a lesion?

A. Yes, sir; certainly.

Mr. Miller: That is all.

CROSS-EXAMINATION,

BY MR. SIZER:

Q. When you say they were given normal food, you

mean they were given food you described in your testimony a few days ago?

A. Yes, sir.

Q. Besides the simple syrup in some cases the Coca-Cola syrup in other cases and so forth?

A. Yes, sir.

Q. Do lesions invariably produce some disease or do they sometimes remain in the body throughuot life and the person die from some other cause?

A. They are invariably the result of disease, or a diseased condition, but they remain in the body——

Q. (Interrupting) Undeveloped?

A. — and the body may die of some other cause. For instance, sometimes we find in the lungs that a person gives signs of having had tuberculosis early in life, and the scars or lesions, remain, and yet the person dies from something else.

(Witness excused).

DR. H. C. FULLER,

recalled for further examination, testifies as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. I will ask you, Doctor Fuller, if you have prepared so that it can be preserved an identified the remnants of animal life which you found in this analysis which you made of this one keg of Coca-Cola syrup.

A. Yes, sir.

Q. Have you that present?

A. Yes, sir.

Mr. Miller: I suppose it might be more proper to exhibit it and file it as an exhibit.

Mr. Sizer: They were filed several days ago.

Mr. Miller: They were said to be offered in evidence but not filed.

Mr. Sizer: You certainly offered them in evidence.

Mr. Miller: Yes, sir; but I never asked that it be filed and I never offered to have it lettered, and I now offer it and ask to have it lettered after the last exhibit.

The Court: That may be done.

BY MR. MILLER:

Q. Have you or not examined many specimens of Coca, Doctor?

A. I have.

Q. State what other substances—marked substances or ingredients if any—are always found in the Coca.

A. Cocaine, allied alkaloids and chlorophyll.

Q. Did you find in the examination of this Coca-Cola syrup which you examined and of which you furnished the analysis on the former examination, any chlorophyll?

A. No, sir.

Mr. Sizer: That subject I know was gone into thoroughly on the examination and on the cross-examination and the Doctor said he found no chlorophyll.

The Court: That is my recollection.

Mr. Miller: If he said that, the question is withdrawn, but if he did not I will make the testimony later.

The Court: My recollection is that has been gone into fully.

Mr. Sizer: I know Doctor Fuller testified on that for I read his testimony the other day.

The Court: Did you testify about that?

The Witness: Yes.

BY MR. MILLER:

Q. Did you find in that examination any constituent he coca——

Mr. Miller: Did I ask that question the other day? Will you agree that that was asked, Mr. Sizer, and that the answer was in the negative? If you do, I won't go into that.

The Court: Did you testify on that?

The Witness: That was brought out on cross-examination.

The Court: You did testify on that point?

The Witness: Yes, sir.

Mr. Miller: If that is conceded, it is all right.

The Court: That is my recollection, and the witness states that he did.

Mr. Miller: I have not been able to carry all these things in my mind.

Mr. Sizer: I am not conceding the exact language of the answer but I know that the question was asked and an answer was given, and the record will show what the answer was.

BY MR. MILLER:

Q. Do you recall whether you were asked as to whether there were any ingredients or constituents of coca in this mixture?

A. In the syrup?

Q. In the Coca-Cola syrup.

A. I was asked about cocaine and chlorophyll. I remember those particularly.

Q. I ask you now, to be clear, if you found any other constituents of coca in this mixture.

A. No, sir.

Q. I will ask you to state what was the per cent. of the alcohol in these mixtures that you furnished to Doctor Morgan on which he fed the rabbits or was supposed to have fed them, according to his testimony.

A. I gave him Merchandise No. 5 which contains sixteen per cent. of alcohol and I gave him a mixture of water and Merchandise No. 5 and caffeine. The amount of Merchandise No. 5 being fifteen cubic centimeters to 1235 cubic centimeters, and the caffeine being in the proportion of one grain to an ounce; and that would amount to about 2.10 of 1 per cent. of alcohol.

Q. What was the percentage of alcohol in the remainder of the mixture, do you think?

A. There was none.

Q. Is there any alcohol in Coca-Cola syrup?

A. A small quantity.

Q. What percentage?

A. From 1 per cent. to less. It varies. I found that it varied.

Q. Any alcohol in the simple syrup you gave him?

A. No, sir.

Q. I will ask you to make, or if you have made it, to pass to the adverse counsel and give one to the stonegrapher, a synopsis showing the various mixtures you gave to Doctor Morgan for this feeding as showing the percentage of caffeine and of syrup and other ingredients contained in the mixture which you gave.

A. I have that.

Q. If you have that, will kindly pass them around? Just give one to the stenographer and file it and let it be properly lettered as an exhibit.

(The said exhibit was filed and lettered and is as follows:)

No. 1 Merchandise No. 5, containing 16.1 per cent. alcohol.

No. 2 A mixture consisting of 1235 cc. of water, 15 cc. Merchandise No. 5, containing 1 grain caffeine to the ounce. Alcohol 0.2 per cent.

No. 3 A solution of caffeine in water, each ounce containing 1 grain caffeine.

No. 4 A solution consisting of 50 per cent. sugar and 50 per cent of water.

Q. State whether or not you have examined Merchandise No. 5 with a view to ascertaining whether or not there was any cola shown, and if so, what percentage of cola you found.

A. I stated that I found one-tenth—1/100th of one per cent., I should say, of caffeine. Now, it was impossible

for me to tell from the quantity of the material whether it was in the form of extract of cola nut or not. If you wish to assume it was present as cola nut I can give you approximately the per cent. of cola that would be there.

Q. What was that?

A. In Merchandise No. 5?

A. Yes.

A. About five-tenths of one per cent.

Q. And in the case of Coca-Cola mixture, are you prepared to say whether or not this caffeine that was there found was the product of the cola plant, and if you say you are or are not, tell why.

A. I am prepared to state this: That it is not there in the form of extract of cola nut but I am not prepared to say from what it was obtained.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You say, Doctor, you are prepared to state that caffeine in Merchandise No. 5 was not derived from the cola nut?

A. In Merchandise No. 5, no, sir, not prepared to state it was not.

Q. You are not prepared to state it was not?

A. No, sir.

Q. The fact is when you find caffeine in any substance, is there any means of determining from what particular source that caffeine came?

A. I should not say that because there are instances where other ingredients that are present in those drugs will be found and from the other drugs you can obtain some indication as to what drug was used.

Q. How can you tell where you find these other substances whether mixed with caffeine or whether they and the caffeine together were derived from the same particular substance?

A. Well, I will have to give some example——

Q. No, just answer that. If you find free caffeine in any particular mixture and find other ingredients mixed with it or associated with it, how are you able to tell whether these other ingredients were mixed with caffeine separately or whether the caffeine and other ingredients came originally from the same substance?

Mr. Miller: Let him give an example.

Mr. Sizer: I want him to answer the question first.

The Court: If he can answer it by illustrating, he can adopt such method of answer as he deems proper.

The Witness: Of course, that is merely a question of experience.

BY MR. SIZER:

Q. It is a question of inference, in other words?

A. No, sir, it is not.

Q. Do you mean to say, Doctor, if you found free caffeine in a particular compound associated with other ingredients that you can tell whether the caffeine and other ingredients were derived together from the same substance, or whether the caffeine and the other ingredients were mixed in the compound and came from different substances?

A. Well, I say if I can give an example I think I can tell you.

Q. State whether, first, you can tell that.

A. Yes, sir, you can.

Q. Do you mean you can tell positively in every case?

Mr. Miller: Just let him give that example.

The Court: You may give an example.

BY MR. SIZER:

Q. I don't see why an example is necessary to answer a simple question like that. Now, I want to know if he can invariably determine and with positiveness whether free caffeine he finds in a mixture associated with other ingredients was originally derived with those other ingredients, from some substance or whether the caffeine and other ingredients were taken from different substances and mixed together.

The Court: The witness was first asked without the use of the word "invariably," and if he wishes to answer that question by illustrating he may do so. He may proceed to the last question if he does not care to explain.

The Witness: I should not think it invariable.

BY MR. SIZER:

And if you do it in any case it simply would be a matter of inference from the particular circumstances of the case?

A. It would not always be inference.

Q. You could take caffeine and take the other ingredients and mix them together, form in the compound, the caffeine and the other ingredients not being taken from the same substance, could you not?

A. You will have to be more specific.

Q. Well, could you do that or not? Could you form a compound of that kind?

A. That is too general. I would not want to make any answer.

Q. I want you to say whether you could do that or not?
A. I would not want to say either way.
Q. You are not prepared as an expert to express an opinion on that point?
A. Yes, sir; but it is a very broad proposition that you have brought up.
Q. You say you would not want to express any opinion about it?
A. No, I should not.
Q. Now, you say, Doctor, you do not find any cocaine and chlorophyll in Merchandise No. 5?
A. No, sir.
Q. You did find, I believe you stated on your former examination, certain aromatic substances, oils and things of that kind?
A. No, sir; that is in Coca-Cola.
Q. Did you find any of these in Merchandise No. 5?
A. No.
Q. Did you find any volatile matter?
A. Yes, sir.
Q. Do you know from what these volatile matters were derived?
A. Yes, sir.
Q. From what?
A. Coal tar.
Q. From what?
A. Coal tar.
Q. That is the scent of toluol that you received?
A. Yes, sir.
Q. And all the toluol that you discovered was the simple smell of it?
A. Yes, sir.
Q. You did not isolate any amount of it?
A. No, sir.
Q. So that the only volatile matter you discovered was a trace in Merchandise No. 5?
A. No, sir.
Q. What were the others?
A. Alcohol and water.
Q. Alcohol is not derived from coal tar?
A. No, sir.
Q. Were the alcohol and the water the only other volatile matters you discovered?
A. Yes, sir.
Q. You did not find any other voltatile matter except the water and alcohol and this odor of toluol?
A. That is all.
Q. Did you try it for anything else?

A. Yes, sir; I did.

Q. Doctor, when a sample of free caffeine is produced before you, it is impossible to tell, is it not, from what particular source that caffeine came?

A. Yes, sir.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. In this particular instance, that is, in the case of Coca-Cola, state whether or not you are able to state by reason of your analysis that the caffeine there found was not derived from Coca-Cola and if so, tell why.

A. You mean caffeine?

Q. Yes.

A. Itself.

Q. Yes.

A. You mean added as cola extract?

Q. Yes.

A. Well, in the first place the solution is a dark-brown —now, the extract of cola nut or in fact the fluid extract of the same drug, is a dark brown and it has a property of losing that color when you precipitate it with lead acetate. Now, you take this cola syrup and treat it with lead acetate, and there is no change in the color. Now, had there been any appreciable amount of extract of cola there, there would have been some diminution in the brown color, that is one reason. Another reason is that the total residue there, including the glycerine, caramel and sugar, would not permit of the quality of residue from cola extract that would have to be present, provided the amount of cola was in the mixture represented by that amount of caffeine; I do not know whether I have made myself clear there but there is a little figuring involved there.

There are two-tenths per cent. of caffeine found in the cola. Now, assuming that in cola there is two per cent. of caffeine, it would figure roughly one pound to the gallon.

I have these figures and if you care to have them submitted, I will do so.

One pound of cola in this extract will give about twenty-five per cent. of residue which amounts to about a little over three per cent. of the residue in this cola which would have to come from cola.

There is another reason, too, which I know for a fact, but it is in connection with the amount of cola that is imported into the United States. I do not know whether that is relevant here or not.

Q. I am not asking you as to that. State whether or not this caffeine, which has been in the Cola-Cola mixture

had been obtained from the cola, or was an extract from the cola, whether or not that would have appreciably increased the residue which you found after your analysis.

A. Yes, sir.

Q. Then are you or not able to state that the caffeine which you found in Coca-Cola was not obtained, that is all of it, was not obtained from the cola.

A. Well caffeine alone—of course you can't state—but what I was trying to bring out was it was not there as extract of cola.

Q. That is what I am asking you, whether or not it was there as extract of cola.

A. It was not.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor. if you extracted caffeine from the cola nut, that isn't extract from the cola nut, is it?

A. No.

Q. It is not?

A. No.

Q. And if you extract caffeine from cola nut, you would say that was not an extract from the cola nut?

A. Yes, sir.

Q. You say it was not?

A. Yes, sir.

Q. You do say, however that there is no method of telling by analysis of the Coca-Cola syrup whether the caffeine in its comes from the cola nut or from the coffee bean or from tea or from guarana or from any other source from which caffeine may be taken.

A. No, sir.

Q. There is not?

A. No, sir.

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. Explain the difference between extract of cola and caffeine pure.

A. Well, extract of cola is a solution of the ingredients or it may be a solution evaporated, of all the ingredients obtained by extracting cola by alcohol and water, and glycerine is also used in obtaining extract of cola. That, of course, includes caffeine and a number of other ingredients, common matter, volatile and other substances. Now, caffeine is one of these constituents, and when it is obtained alone and purified, it is not an extract of cola, or is identical with caffeine which is obtained from coffee, tea, guarana, and from what may be made synthetically.

Q. That is the difference, then, between the extract and the pure caffeine?

A. Yes, sir.

RE-CROSS EXAMINATION, BY MR. SIZER:

Q. You mean, as I understand you, that there was no extract in the coca-cola syrup that contained all the ingredients that might be extracted from the cola nut?

A. Yes, sir.

Q. That was the only ingredient included, caffeine, which might have been extracted from the cola nut?

A. Yes, sir.

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. If I understand you, not in the proportion it could be extracted from the cola nut? and have the same amount of residue that you found in Coca-Cola?

A. Well—I don't say—

The Court: (Interrupting.) That has been fully gone into, I think.

(Witness excused.)

The Court: Does the Government claim that the use of the word "coca" includes it is composed in any part of the extracts of cola—as distinguished from—

Mr. Miller: No, we do not claim that—I have no objection to going on record and stating our position, the position of the Government, that is we claim that in this product if cola was in it at all, it was very little, a mere trace, and hence it was an imposition.

Mr. Miller: I will ask Dr. Salant to take the stand.

Mr. Sizer: As I recall, your Honor ruled on that particular clause of the information when it was read, that it didn't make any charge—

The Court: (Interrupting.) I said that I understood counsel for the Government to agree that the charge that it contained little, if any, was not a charge that raised any issue as a matter of fact——

Mr. Miller: I stated our position, that it did contain little, if any, and if it be so little as to amount to an imposition, then it is a violation of this act, and I am prepared to show that in the argument.

The Court: This question is not very material anyhow, as to the cola, if your contention is right it does not contain an extract from coca, that question of cola is immaterial.

Mr. Miller: There are two barrels to the gun in that connection—I did not mean to invoke a ruling from your Honor at this turn, I have no objection to stating our position to adverse counsel.

William Salant, re-called for further examination, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Dr. Salant, state whether or no with your various experiments with caffeine, you determined whether or not caffeine, when fed by the mouth, would be excluded, or excreted, as some of the medical authorities use the term, in the urine?

A. Yes, sir.

Q. Did you or not find that it was thus excreted or excluded?

A. Yes, sir; I found caffeine in the urine after the administration of caffeine to animals.

Q. Was that in what you call the free caffeine form?

A. Yes, sir, free caffeine—the alkaloid.

Q. Did you or not find in these same animals that were fed caffeine that it existed in the bile as well?

A. Yes, sir, I found it in different kinds of animals.

Q. Did you make any investigations to ascertain whether or not it lodged in the brain on passing through?

A. No, I have not made any investigations as to that.

Q. You have not made any on that line?

A. No, sir.

Q. Now, from your investigation and scientific research, state whether or not it could be fed by mouth and discharged in the urine, it would of a certainty pass through and come in contact with the brain.

A. It must enter the circulation before the urine, and if it enters one part of the circulation, it has to circulate all through the body, including the brain.

Q. It does include the brain, then?

A. Yes, sir.

Q. And it comes in contact with the brain?

A. Yes, sir, of necessity so, certainly.

Q. State the relation between man, or the similarity between man and rabbits in the matter of circulation.

A. You mean physiologically?

Q. Yes.

A. Well, the anatomy is practically the same, the rabbit as well as man, has a heart, and blood vessels, and in order to reach the tissues, the blood must circulate in the rabbit as well as in the man, reaching every part of the body.

Q. Is that same thing true in man?

A. Yes, sir.

Q. State whether or not these experiments in which you discovered caffeine, fed by mouth was excreted in the urine, were conducted on rabbits?

They were conducted on rabbits.

Q. State whether or not caffeine administered by way of mouth is brought in contact with the muscles before being discharged.

A. If it enters the circulation, it certainly does, it must of necessity come in contact with all the tissues of the body including the muscles. Moreover, some of the symptoms show that it must be so.

Q. What are those symptoms?

A. For example, chronic rigidity of the muscle, of which I spoke yesterday.

Q. What muscle is that?

A. All the muscles, the voluntary muscles anyhow.

Q. I will get you to state whether or not your findings as to the discharge of urine, I mean the discharge of caffeine in the urine, has been announced for some months publicly to the medical profession of the United States, and when it was announced in fact.

A. The presence of caffeine in the urine has not been published, but the presence of caffeine in the body has been published in the proceedings of the Society of Experimental & Biological Medicine, it was presented there in May, 1910, about a year ago.

Q. At what meeting and where was the meeting held?

A. In New York City.

Q. In order to determine the physiological action of the drug, if given animals to experiment on—I mean, in order to determine the character of the drug or the name of the drug, if you were given a drug, to give an animal to experiment on, state what is the usual and customary test to determine the character or name of the drug—that is, if there be one required by medical authorities.

A. The most accurate and the most delicate test for drugs is by experiments on animals.

Q. How did you determine as to the drug if you didn't know the name of it?

A. From the characteristic symptoms.

Q. And by that do you or not mean the physiological action direct on the animal?

A. Yes, sir.

Q. Is that or not recognized as a standard test to determine what the drug is?

A. It is by medical men.

Q. State whether or not tests of that kind are generally recognized by the medical profession.

A. I have said it was recognized by medical men.

BY MR. HIRSCH:

Q. In making this test to find out a substance when it

is a new substance that the medical profession do not know anything about, is it not necessary in testing the animal to use right alongside of it, side by side, a control animal that is given the same things but without the substance you are testing? Having the same conditions surround both animals.

A. All scientific experiments are carried out with controls, or should be done, to be scientific.

Q. And these controls should be worked at the same time and under the same conditions exactly as the test animal?

A. Yes, sir. Exactly so.

Q. You state that caffeine was eliminated in the urine in all the animals you experimented on?

A. I have not examined the urine of all the animals experimented on. That would be impossible—for caffeine. But all those I did examine and give caffeine—that is to say—

Q. (Interrupting.) Now—

Mr. Miller. Let him answer. He said "That is to say" —showing he has not completed his answer.

A. (Continuing.) That is to say, I gave some animals caffeine and I examined their urine and in those animals I found caffeine.

Q. But is it not a fact that as to whether the caffeine would appear in the urine as caffeine, would be dependent on the quantity you gave?

A. I don't know about that.

Q. Did you not state in your examination yesterday that the body has a means by which it can demethylize?

A. Yes, sir, I did.

Q. Then as to how much it can demethylize is dependent on the quantity you gave?

A. That may be a factor—that may be a factor, I am not positive.

Q. That is a factor?

A. That may be a factor. I didn't say it is a factor.

Q. Will you state whether or not you can find caffeine in the urine as caffeine—whether that depends on the quantity you give?

A. You are asking the same question.

Q. I am. You say it may or may not be so?

A. In order to determine that I would have to carry out experiments with different quantities of caffeine and then I could give a positive answer. Otherwise I would not care to give an answer.

Q. What test did you use on those animals in which you say you found caffeine in the urine to ascertain

whether or not it was pure caffeine?

A. First, the general neuraxic test, which is not positive but simply gives a clue as to whether it belongs to that group.

Q. That will not tell you—

A. No, I simply say it gives you an idea whether it belongs to that group. That is negative, and then there is no use in going any further. Do you understand that?

Q. Yes, I understand it.

A. Then the crystalline appearance of it, and if the neuraxic test is not negative you can proceed further.

Q. If it responds?

A. Yes, sir. In some cases, similar experiments, I use the animal test—that is to say, I took the product and injected it into a frog and saw whether the chemical test is corroborated. If the frog responds then I am positive it is caffeine. In other words, we use the chemical and the biological test both.

Q. As far as the neuraxic test, if there was a response that did not tell whether it was theobromine, theophyllin or caffeine?

A. No, sir.

Q. But simply told you it was one of the xanthine bases there?

A. That is it, one of that group.

Q. Now, you state you found caffeine in the bile?

A. Yes, sir.

Q. Is that or not dependent on the quantity you would give as to whether you would find caffeine in the bile?

A. That would hold true, but I have made no experiment with different quantities of caffeine introduced into the body and then look for its appearance in the bile. I can not give an answer without having experimented with different animals, and I have not done that.

Q. Now, could you tell from the tests you used as to whether the substance you found was theophylline, theobromine, caffeine or xanthine?

A. The chemical data, together with the biological, makes it absolutely conclusive that it was caffeine.

Q. What was the chemical test?

A. I do not remember.

Q. Have you any idea as to what the chemical test was?

A. I have no idea, I do not remember, it was done under my direction though, and always carried out in my presence, but I cannot recollect.

Q. What other tests did you make—did you make any besides the neuraxic and chemical tests?

A. Yes, sir; I made the meuraxic test and then the

crystalline appearance of the caffeine.

Q. Did you make a sufficient test to separate the theophylline, theobromine and the caffeine and the xanthine?

A. No, I never supposed it was theophyllin or theobromine in that test.

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. What do you mean by in addition to these two tests that counsel refers to that you made what you call the biological test?

A. By injecting into a frog.

Q. When you injected that substance, it was discharged in the urine and it was afterwards subjected to tests which adverse counsel referred to, and what result did you get in the frog with what was taken from the body?

A. I didn't do that with what was taken from the body.

Q. I say, what effect did that produce on the frog?

A. Repeat that question?

Q. After the two tests to which counsel referred, you obtained these substances which you say you injected into the frog, and what result did you get from the injection?

A. The caffeine obtained fro mthe animal tissue, which I examined, which I gave the frog, gave him the same symptoms as the pure caffeine which I used for my animals.

Q. Did you or not have control animals at the same time you were carrying on these caffeine experiments on other animals.

A. Oh yes, there were plenty of animals in the laboratory which were given other drugs besides those that were given no drugs at all, so that we always have means of comparison. That was the method right along in my laboratory.

Q. You had, then, control animals as respects the caffeine?

A. In all the experiments I make, I have normal animals present, so that I can compare them with the ones I am experimenting one.

Q. Is caffeine what is called a new drug?

A. I don't know what you would call a new drug. It is eighty years old.

Q. Eighty?

A. It was first found in 1820 or 1823.

Q. It has been known to the medical and scientific profession ever since?

A. Not since 1823 but from about 1838, when the first animal experiments were performed with caffeine.

Q. What experiments did you make to ascertain whether this caffeine, when administered by way of the mouth,

was secreted or neutralized by the liver?

A. I have not performed any such experiments, showing that it was neutralized.

Q. I asked you what, if any, experiments you made as respects the liver, tell what they were and what they were made for.

A. I made experiments in which I ground up the liver and added various amounts of caffeine, or rather the experiments were done at my suggestion and I gave advice from time to time, and we found that the caffeine is not destroyed by the liver.

Q. How did you determine that it was not destroyed by the liver?

A. I cannot give the details, because that was done under my suggestion, and I gave advice from time to time but I did not do the chemical part of it.

Q. Who did the chemical part of the work?

A. Dr. Emory was my colleague.

Q. Is he present?

A. Yes, sir.

Q. That was done under your advice and suggestion?

At my suggestion and with my advice.

Mr. Miller: That is all.

RE-CROSS EXAMINATION, BY MR. HIRSCH:

Q. Now, this substance which you obtained from the urine of these animals you experimented on by the neuraxic test, could have been theophyllin, theobromine, caffeine or xanthine?

A. Yes.

Q. And would not xanthine have practically the same effect as that you attribute to caffeine?

A. I do not think so but I do not know. I have not studied xanthine.

Q. You do not know?

A. I have not studied xanthine. I have studied caffeine only.

Mr. Miller: If it be true that you would grind up the liver of an animal in connection with caffeine and retain that at a normal temperature, and after standing a number of days, the amount of caffeine added originally was practically the same, that that amount would practically be recovered, what would that prove to you?

A. It would prove that the caffeine was not destroyed by the ferments of the liver, that the liver does not contain any ferment that would destroy caffeine.

BY MR. HIRSCH:

Q. How did you prove that that was caffeine?

A. I injected it in a frog.

Q. And the same would hold true as to that, that you did not know if it was xanthine or caffeine.

A. From all appearance, it was caffeine.

Q. But you don't know that it was caffeine?

A. I have never handled xanthine myself, but I know something about xanthine.

Q. You know something about xanthine? Would not xanthine have the same effect that you found?

A. I don't think so.

Q. Why not, and how does it differ? Why don't you think so?

A. As I gather from reading, xanthine does not produce exactly the same nerve and muscle symptoms.

Q. You say then that the effects of caffeine are not the same as those of xanthine?

A. I would not like to say that because I have not investigated as to the pharmacology of xanthine, and I do not know of any positive authority on the subject.

Q. Why did you not try the action of xanthine—why didn't you try all of those things, if it could have been xanthine, theophyllin, theobromine or caffeine, why didn't you try each to ascertain which one it was?

A. For one thing, theophyllin, pari-xanthine, or any of those bodies, require pretty large quantities to produce effects, and we do not work with very large quantities. Caffeine in the amounts produced would have given those results.

Q. Is not parixanthine or theophyllin powerful muscular stimulant?

A. Not as powerful as caffeine.

Q. Not as powerful as caffeine?

A. Certainly not.

Q. What experiments did you make to find that out?

A. I did not perform any experiments but I know that as to the substance.

Q. As to the substance? Are they not more powerful muscular stimulants than caffeine?

A. No, sir.

Q. But you don't know from experiments?

A. No, sir; not from my own experiments. I have not performed any experiments either with theophyllin or xanthine.

Q. What experiments do you know it from?

A. I cannot recall the literature, but I think I can find the reference in my notes.

Q. How do you know that what you found in the bile is caffeine?

A. The chemical tests that I referred to.

Q. Is that the only test you made?

A. In the body, yes.

Q. Is that sufficient to identify it?

A. Under the circumstances, I think it was.

Q. Was that the meuraxic test?

A. No, sir; that was not the meuraxic test.

Q. What kind of a chemical test did you use?

A. The crystalline appearance if it—I can't remember the chemical test.

Q. Does not paraxanthine crystallize?

A. Oh yes, but not the same kind.

Q. What is the difference between the crystals of paraxanthine and caffine?

A. I don't know. I did not qualify as a chemist, and I cannot tell you.

(Witness excused.)

W. O. EMERY, the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. MILLER:

Q. Are you the Dr. Emery that has been just referred to by Dr. Salant, during his examination on the stand, as his associate?

A. Yes, sir.

Q. I will ask you to state whether or not you made any chemical tests to ascertain whether or not caffeine was found in the bile and in the urine of these animals which Dr. Salant has talked about, in either or both, and if you say you did, tell what chemical tests you resorted to.

A. I examined bile only.

Q. What did you find as to the presence of caffeine?

A. Caffeine was issolated as such in the pure form, and we used the usual chemical identification tests, and then it was given to Dr. Salant for physiological application.

Q. By that you mean to inject it into something?

A. I suppose so, yes.

Q. State whether or not you made any experiments as respects the liver in connection with caffeine to see what became of caffeine after it reached the liver in the human organism, and if so, what did you do in that behalf?

A. A great many experiments were performed on beef liver, ground with or without sand, to which varying amounts of pure caffeine were added, and these mixtures warmed or maintained at a uniform heat about the body temperature, thirty-seven degrees Centigrade, and then these mixtures examined for caffeine, or the derivatives of caffeine, the xanthines, the demethylated products. In

all cases the experiments showed that little or no caffeine was demethylated for the reason that most of the caffeine was recovered and identified by the usual tests.

Q. When you speak of thirty-seven degrees Centigrade, what does that mean as respects normal temperature?

A. That is the normal body temperature, about the body temperature.

Q. How long were these livers permitted to stand at that normal temperature before you resorted to the test to ascertain whether the caffeine was yet there?

A. Oh, yes, one, three, five or seven days. I think seven days was the longest period.

Q. What did you do with this caffeine which was recovered from these livers?

A. I have not all the details now clearly in mind, but in general, the mixture was raised to the boiling point after—

Q. I don't mean what you did to determine that, but what you did with the caffeine when you got it out?

A. The caffeine was tested as to the melting point and the usual physical characteristics being noted, the crystalline form, melting point, the sublimation, the behavior toward silver, whether or not it would or not produce the silver salts. Those were the main tests.

Q. After that was done, what did you do with the caffeine?

A. A portion of the caffeine was delivered to Dr. Salant for tests.

Q. What character of tests?

A. Physiological, I suppose.

Q. State whether or not these tests you resorted to to identify this recovered product as caffeine, were the usual and standard tests resorted to for that purpose?

A. I should so regard them, yes, sir.

CROSS-EXAMINATION, BY MR. HIRSCH:

Q. Do you know whether or not the question of decomposition of caffeine in the liver—whether different results would be brought about by different animals, or have you only tried one case that you mentioned?

A. I tried two—the livers from two different animals.

Q. Which animals were they?

A. Rabbits in the one case, and in all other cases, cattle—beef liver.

Q. Now, you do not know whether that would be true in other animals or not, do you?

A. I have no idea.

Q. Exactly what method did you use to determine

651

whether what you found was caffeine?

A. I isolated it?

Q. After you isolated what you found, how did you determine it was caffeine?

A. I observed that it was a crystalline residue, needless, melting about 233 or 234, as I now recall, sublimed apparently without decomposition, and gave no silver salts when treated with dilute ammonia and silver nitrate.

Q. Now, you found no other substance besides the caffeine?

A. In the final residue?

Q. No, that which you first found.

A. I cannot say what was found in the residues which were examined for increase in nitrogen over the control carried out at that time. The increases were very slight, and would indicate that none of the caffeine had been demethylated.

Q. How much caffeine did you recover as such?

A. I used all the way from half a gram, to, I think, in one case, five grams.

Q. How much did you recover of pure caffeine?

A. I have recovered up to ninety-seven and ninety-eight per cent.

Q. Some of it was demethylated?

A. There has been some loss.

Q. That was a dead operation?

A. Naturally.

(Witness excused).

PROFESSOR ALBERT P. MATTHEWS

the next witness brought on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER.

Q. Professor Matthews, what is your profession?

A. I am professor of Physiological Chemistry in the University of Chicago.

Q. Where were you first educated, Professor Matthews?

A. I was educated in the Massachusetts Institute of Technology.

Q. In what State?

A. Massachusetts.

Q. Where did you attend school before going there?

The Court: Just ask one question, to give his medical education.

BY MR. MILLER.

Q. I will ask you first where you were born?

A. I am a native of Illinois. I attended the common schools of Illinois.

Q. In a general way, state how you obtained you education after leaving the School of Technology at Boston where you studied, and approximately how long, and bring your career down to the present.

A. I studied two years at the Columbia University in New York and then two years further time in Cambridge, England, and part of the time in Germany, and for some months in Naples in Italy. I then returned to this country, and spent another year studying at Columbia University and took my degree there as a Doctor of Philosophy. I then became an Assistant in Physiology in the Harvard Medical School.

Q. Located at Boston?

A. At Boston; also an Instructor in Physiology at Tufts Medical School, also in Boston. I was afterwards an Instructor in Physiology at the Harvard Medical School and in 1901 I went to the University of Chicago to take charge of Physiological Chemistry, and temporarily of Pharmacology there.

Q. Have you or not studied and made animal experimentation both in physiological chemistry and pharmacology?

A. Yes, sir; my line of investigation is on the chemistry of the cell and its physiological behavior and the method of action of poisons and drugs upon it. I have published several papers on that general line.

Q. That would be termed the chemical composition of the cell?

A. In a general way, yes, sir.

Q. I will ask you to state whether you are acquainted with what is known as the nuclein acid.

A. Yes, sir; I am acquainted with it.

Q. State whether or not that is found in all forms of animal life.

It is found in all kinds of cells,—in all forms of animal life.

BY MR. MILLER:

Q. Part of the cell structure?

A. Yes, sir; part of the nucleus where there is a nucleus in a cell.

Q. During your professorship at the University of Chicago, what number of pupils have you had under your supervision and direction annually?

A. You say annually?

Q. Yes, sir; on an average, Professor.

A. Well, sixty or ninety a year is the average.

Q. During the time you have occupied this chair in the University of Chicago, have you affiliated with any other institution or institutions at the same time, and if so, what?

A. I am also professor of physiological chemistry in Rush Medical College, which is affiliated with the University.

Q. Is Rush Medical College located in Chicago?

A. Yes, sir.

Q. Now, you are acquainted with a substance termed "caffeine?"

A. Yes, sir.

Q. Are you acquainted with its physiological action when administered by mouth or subcutaneously?

A. Yes, sir.

Q. What is the difference between the administration by mouth and administration subcutaneously, as it has been termed—that is, by injection?

A. The difference in effect is simply one of degree. It takes a larger dose to produce the effect when given by mouth than when put under the skin.

Q. You mean, to produce the effect or to produce an observable effect?

A. An observable effect.

The Court: Which has the greater effect?

The Witness: When put under the skin.

BY MR. MILLER:

Q. When you speak of effect do you mean the effect in the abstract, or do you mean an observable effect?

A. I mean an observable effect.

Q. Now, assuming that an animal or a human were given caffeine by way of the mouth and then caffeine was afterwards discharged in the urine, I will get you to state from your experience, observation and study of anatomy, physical chemistry and pharmacology, whether or not caffeine would pass through the portion of the brain or all of it before it would then be excreted.

A. It would pass through the brain.

Q. What would be the course that the caffeine would take, what route, so to speak, would it take before it would be excreted, or discharged?

A. It is absorbed in the blood from the intestines.

Q. It goes first into the stomach?

A. Yes, sir; and then into the intestine, and then it is absorbed from there in the blood, and by the blood it is distributed throughout the body.

Q. Now, when it gets into the blood, how does it reach the brain?

A. Well, the blood carries it there.

Q. What would you say as to whether or not it would be brought in contact with the muscle?

A. It is certainly brought in contact with the muscle.

Q. If administered by way of mouth?

Yes, sir.

Q. What is the physiological action of caffeine on a muscle when brought in contact with it?

A. It causes rigor, coagulation of the muscle.

Q. And by that you mean a stiffening and hardening?

A. A stiffening and hardening.

Q. State whether or not the effect of muscular contact is or is not well known and recognized by pharmacologists and physiological chemists.

A. It is a well known and well recognized fact.

Q. Now, what is the action of caffeine when it is administered by mouth as to the human anatomy, commencing with the human muscle, then the cord, then the heart and then the brain, if there be such an effect resulting from it? Take them up in detail, commencing with the muscle first.

A. The effect of the drug on the muscle, as I say, is to produce rigor, coagulation,—if given in sufficient quantities.

Q. Is that a departure from the normal?

A. Why, certainly. On the central nerves system—

Q. What do you mean by that?

A. I mean the brain and spinal cord. On the spinal cord caffeine produces an effect which is practically identical with strychnine, differing only from it in degree; it takes a larger dose to produce the action.

Q. What is that action that it produces?

A. It increases the sensitiveness of the spinal cord or the impulses coming into it, so that an animal which has taken caffeine or strychnine will go into a spasm if it is stimulated or touched. Oftentimes a breath of air will throw it into a spasm.

Q. Is that or not a departure from normal?

A. Undoubtedly.

Q. Well now, then take the heart, what is its effect physiologically on the heart?

A. The physiological effect on the heart is mostly similar to the effect of digitalis. It increases the force of the heart beat but it differs, however, from digitalis in that it does not slow the heart to the same degree by stimulating the nerve centers that control the heart and its action

on the heart itself is closely allied to that of digitalis, it belongs in the same group of drugs so far as that action is concerned.

Q. Does or not its effect on the heart induce a departure or change from normal?

A. Yes, sir. It increases the rate of the beat and it increases the strength of the beat in small doses.

Q. Well, what do you mean by small doses, Doctor?

A. Well, that is rather an ambiguous expression. That I should not have used, but if you use it in a rabbit or if you use it in a dog, giving an injection of, I should say, from five centigrams to a decigram, you get an effect certainly on the heart, and to my recollection as to the particular dose in that particular—that is not very good,—it has been several years since I have tried experiments of that sort.

Q. That is merely your general recollection?

A. Yes, sir; merely the general recollection.

Q. What is its physiological action or effect of caffeine on the brain?

A. Its effect on the brain—it stimulates higher centers of the brain—those which have to do with intellect and the motor centers also.

Q. Is that or not a departure from normal?

A. Yes, it is.

Q. Have you seen the direct application of this substance to the muscle?

A. Yes, sir.

Q. State what that effect is as compared with the injection of the substance into the blood stream.

A. It has the same effect.

Q. State whether or not after being introduced into the blood stream it is afterwards recovered and isolated.

A. From the muscle, you mean?

Q. Either the muscle or the blood.

A. It has been recovered from both the muscle and the brain.

Q. After an injection into the blood stream?

A. After an injection into the blood stream—after a subcutaneous injection.

Q. Could you conceive of any reason why that would not be so if taken into the mouth?

Mr. Sizer: I object to that.

Mr. Miller: He is competent—he has qualified.

The Court: Ask him the question whether it is his opinion from his experience, from his scientific knowledge, in his opinion it would have the same effect,

BY MR. MILLER.

Q. In your opinion, from your investigation, experience and research and reading, would it have the same effect after being taken in the mouth as if it were injected subcutaneously?

A. Yes, sir; that is my opinion.

Q. In your opinion, if taken by way of the mouth, might it be recovered in the brain or might it be found there?

A. It might be.

Q. Well, state—

A. I was going—

Q. (Interrupting) I beg your pardon?

A. Simply for the sake of fairness I would like to state that I do not know it has ever been.

Q. In your opinion it may be, though?

A. Yes, sir.

Q. Giving a drug without knowing its name, to an animal or animals on which you experiment and observe the physiological action of this drug, state whether or not there are any recognized tasts for determining the name of the drug, and if so, what they are.

A. You mean to determine what the drug is?

Q. Yes.

A. Caffeine can be recognized by the picture it gives in the change of the animal. In the behavior of the animal.

Q. What are some of the tests that would be resorted to, some of the usual and well recognized tests that would be resorted to to determine whether or not it was caffeine, under these conditions?

A. Well, I know of no other drug which produces just this picture of the physical effects which are produced in the muscle, the stimulation of the cord and the stimulation of the higher centers, and the effect on the heart. There are different drugs which produce some of those effects but caffeine is the only one I know of which produces them all.

Q. In teaching pharmacology and physiological chemistry, state whether or not the tests which I have suggested —namely, the giving of a drug without knowledge as to what it is and of observing its effect on animal life, is resorted to for the purpose of teaching what the drug is.

A. Yes. It has been my custom in the instruction of students to give them an unknown drug or drugs and caffeine among them, and make them tell me what it is by the result is produces in animals.

The Court: Unless there is some contradiction of that, you need not introduce any further proof on that.

Mr. Miller: He is the only witness I expected to ask it of.

BY MR. MILLER:

Q. State whether or not you are prepared to say whether or caffeine is a poison, and if so, tell us whether it is or not.

A. In my opinion caffeine is a poison.

Q. Is it or not a food?

A. It is not a food.

Q. If it be shown or if it be true, rather, that caffeine was ground up with a liver of an animal, such as a cow, and also with that of a rabbit, and was afterwards recovered, after the composition had been heated at the temperature described by Doctor Emory before leaving the stand, in your presence, and it was found that 97 to 98 per cent. of it was there yet in the liver, what if anything would that prove?

A. It would prove that the ground up liver had not altered it.

Q. If that would be true in the case of a liver obtained at that temperature, what, if anything, would that prove as to the effect of the liver or the liver on the drug, if it be administered by way of mouth, in human organisms?

A. It does not show anything as regards that. If the experiment had been positive, it would have shown something, but being a negative experiment it does not throw any light on that subject.

Q. Have you seen the analyses as submitted by Doctor Fuller of the composition of Coca-Cola syrup in this case wherein the caffeine is shown to exist at approximately 1.20 or one and one-fifth grains per ounce? I mean, per grain in an ounce of Coca-Cola syrup?

Mr. Sizer: I don't think that question is very clear.

The Court: No.

BY MR. MILLER:

Q. I may have gotten mixed in there—but what I am asking him is whether or not he has seen the analyses filed by Doctor Fuller, which shows the composition of the Coca-Cola syrup, and wherein it is shown that one and one-fifth grains of caffeine is contained in one ounce of Coca-Cola syrup, that is what I meant to ask, whether I did it or not.

A. Yes, sir; I have seen that statement.

Mr. Miller: I will ask leave to pass to the witness for his own reference a transcript of Doctor Fuller's testimony on that point so that he may have it before him.

BY MR. MILLER:

Q. Now. taking the analysis as there given, I will get you to state whether or not the administration of caffeine in the proportion there found—assuming that one and a half to two ounces of the mixture be taken by the average consumer,—would have any effect or physiological action on the consumer, and if so, state what it would be.

A. I believe that it would have an effect on the consumer.

Q. Well, what would that be?

A. Varying under different conditions, according to age.

Q. Well, explain why.

A. Undoubtedly it would; it also would depend somewhat on what a man has been used or been accustomed to taking. It depends upon the age, it depends upon size and state of health, and various other things.

Q. Can you illustrate or tell us why it would depend on the state of health?

A. Simply from my experience as to action of drugs varying in different conditions of health.

Q. If a person be in normal health, would it have as marked physiological action, or rather, as marked physiological effect as if he were below normal health?

Mr. Hirsch: I don't think that Doctor Matthew has attempted to qualify as to that; it would require a practictioner to answer that question.

Mr. Miller: I submit it to him.

The Court: Did those experiments qualify you—there is no dispute about that, that its effects vary owing to the condition of a person's health?

Mr. Hirsch: No, I think not.

BY MR. MILLER:

Q. In what class of individuals would its effects be more noticeable?

The Court: You have proven that many times; I think it is not necessary to prove it unless it is disputed and if it is, then you may introduce other evidence on that point.

BY MR. MILLER:

Q. State whether or not its effects would be more or less marked—take children, state whether or not its effects would be more or less marked than on an adult.

The Court: Until some contrary evidence has been introduced, we will not go into that any further.

Mr. Miller: How was that?

The Court: If they introduce any evidence denying

that, then you may introduce further evidence.

Mr. Miller: They decline to state whether they will deny it or not.

BY MR. MILLER:

Q. Assuming that more than one ounce—I mean a dose, —say, containing from one and a fifth to two and two-fifths grains, would be taken through a day, state whether or not the physiological action which you have described and the effect which you have described, would be proportionately increased or whether it would be decreased.

A. It would be increased, but whether it would be in strict proportion or not I do not know.

Q. Would that or not depend on the length of time?

A. That would depend upon the length of time that elapsed between the doses.

Q. Between the doses?

A. Yes, sir.

Q. Would it or not depend on the elimination, whether er it was slow or rapid?

A. I presume so.

Mr. Miller: That is all.

CROSS-EXAMINATION, MY MR. SIZER:

Q. The fact is, Doctor, caffeine is a substance that is quite rapidly eliminated, is it not?

A. It is a substance that persists for some time in the body before it is completely eliminated.

Q. Well, you mean persists in the body as caffeine for some time, or that that the substance as it is broken up may some of it stay in the body for some time?

A. It has been shown to exist as caffeine.

Q. For how long?

A. For at least two days, after the last dose of caffeine had been given; that is, heavy doses.

Q. That was a good many heavy doses in that case?

A. Yes, sir.

Q. And what experiment is that you refer to that produced that result?

A. There are experiments by Courewitsch.

Q. Do you remember the quantities of caffeine that he gave in order to produce that result, that is, to produce the effect of caffeine in the body at the expiration of two days.

A. He gave very heavy doses. He was studying the way animals became accustomed to caffeine and he began with doses that they could stand and gradually increased the dose so that he was giving more than a fatal dose at the end of the time.

Q. What kind of animal was that he experimented on?

A. He used rabbits.
Q. Used rabbits?
A. Yes, sir.
Q. And how did he feed them, by the mouth or inject it into the veins?
A. That was given subcutaneously.
Q. That was not fed to them at all?
A. No, sir; it was not fed.
Q. Now, getting back to the proposition I asked you a while ago,—is it true as a general proposition that caffeine is eliminated with comparative rapidity—that is, compared with other food substances?
Mr. Miller: He stated the time. Whether it was with comparative rapidity is clearly a matter that is incompetent—he stated the time in which it was excreted and that he said was two days.
The Court: He said that was an extreme case and he is asked about the ordinary case. If the witness thinks the word "comparative" is indefinite, he may qualify it.
Mr. Sizer: I ask it as compared with other foods.
Mr. Miller: I have not been permitted to go into that and compare it with other drugs, and I object to counsel going into this and comparing it with other foods.
The Court: Ask the witness,—the question of the witness is what rapidity it is ordinarily eliminated with, and he may answer it and give the period of time.
Mr. Sizer: I submit I am cross-examining the witness and it seems to me I should be permitted to ask him whether or not it is not eliminated with comparative rapidity.
The Court: You may include the word "comparative" as it is very indefinite and will get us into a large field of questioning.
Mr. Sizer: As compared with other food substances, is it true that as a general rule caffeine is eliminated with rapidity?
Mr. Miller: I object to that question because it is not shown that this is a food substance.
The Court: The question as to whether caffeine is eliminated more rapidly than ordinary food a man takes—that is the question. You may ask the question.
Mr. Miller: That is what I objected to.
The Court: Well, the objection is overruled.
Mr. Miller: I except.
The Witness: I should say that it was eliminated with about the same rapidity.

BY MR. SIZER:

Q. As other foods?

A. Not as other foods; as other drugs.

Q. With about the same rapidity as what, then?

A. Well, as—

Q. (Interrupting.) Salt, for instance?

A. No, I would not undertake to say that salt was eliminated faster or slower—I really cannot recall any specific experiments on that particular point. I am giving you my general impression that it is eliminated with about the same rapidity as morphine, for example.

Q. How about the salt? I asked you if it is eliminated with about the same degree of rapidity as salt would be.

A. It is impossible to answer that question as a physiologist.

Q. Then you have not had sufficient experience with it to be able to answer that question?

A. No, sir, I could not answer that question.

Q. The fact is, is it not, that the extent to which any substance taken into the mouth is eliminated and the rapidity with which it is eliminated, depends very largely on the quantities taken and on the individual?

A. Well, I would like for you to define the word "rapidity." You mean the time it appears in the urine from the time it is taken in the mouth, or the time that elapses before the last trace of it is out of the body?

Q. I mean the time that elapses between the taking of the substance and the elimination of it from the body. I want to know if that does not depend very largely on the quantity taken and the individual who takes it.

A. I do not know of any experiments that have been made settling that point.

Q. Then that is another point you are not able to testify to definiately?

A. I am not able to testify to that definitely.

Q. Now, you do know this, that if large quantities of anything are taken, it takes longer for it to go through the body than for a smaller quantity?

A. Longer for the body to get rid of the last trace of it.

Q. So it does take longer to get through if you take a greater than if you take a smaller quantity?

A. For all of it to get through.

Q. You speak about the effect of caffeine on children. The fact is that caffeine is a xanthine-producing body?

The Court: There is no question about that.

Mr. Sizer: I want to get him to say he knows that.

BY MR. SIZER:

Q. Do you know that to be a fact?

A. That caffeine is a xanthine body itself.

Q. Children get with their normal food certain other xanthine-producing bodies. Is it not a fact that milk is a xanthine-producing body?

A. Xanthine bases or produced in the body from a great variety of proteins.

Q. Confine ourselves to milk, the diet of small children. Is it not a fact that milk is a xanthine, or a xanthine-producing body?

A. Any protein substance is a xanthine-producing body.

Q. Is milk?

A. Milk is a protein substance.

Q. Then milk is a xanthine producing body?

A. Yes, sir; it makes xanthine.

Q. It makes them out of certain kinds of food?

A. Out of protein.

Q. Out of many kinds of food.

A. Out of all protein food.

Q. Now, if children get xanthine in their milk and should also take an additional quantity of xanthine in the shape of coffee, they might get too much?

A. The xanthine in their tea and coffee is trimethylxanthine. The methylated xanthine are not produced in the body ordinarily. The trimethylxanthines in milk are broken up and demethylated in part.

Q. Reduced to xanthines?

A. No, sir; I don't believe it is. I have not been able to find any clear-cut evidence of that fact. There may be such evidence but I have not been able to find it myself.

Q. Didn't you testify in your deposition in this case in Chicago, Professor Matthews, that caffeine was broken up and oxydized and demethylated in the body into xanthines?

A. I don't remember whether I made that statement. My recollection is I said it was oxydized and broken up into a xanthine body. If you will read my statement I can tell whether I said it or not but I don't remember that.

Q. Do you say now it is or is not converted into xanthines?

A. I have tried to find some clear-cut evidence that it was made into xanthines since you questioned me on the subject and I have not been able to find it.

Q. You have not been able to find whether it is or is not made into xanthines?

A. No, sir.

Q. So what you say now is you don't know whether caffeine is broken up into xanthines or not?

A. No, sir, I have not been able to find any decisive proof that it is or is not, one way or the other.

Q. Now, xanthine, as you testified in your deposition in Chicago, is one of the normal constituents of the human body?

A. Yes, sir.

Q. It is found in nearly all the cells?

A. I do not know about that.

Q. It is found in the nucleus cells?

A. Not xanthine.

Q. It is not?

Q. At any rate, it is found in the body?

A. Yes, sir.

Q. You say it is not a food?

A. Speaking of caffeine?

Q. Yes.

A. No, sir, it is not a food.

Q. It does result in the production of energy by its demethylization in the body?

A. I do not know that it is by its demethylization but by its oxidation it certainly would liberate more energy.

Q. Oxidation of caffeine in the body results in the production of energy?

A. Yes, sir.

Q. And the production of energy is one of the functions of a food?

A. No, sir. I do not agree with you there.

Q. Well, didn't you say so in your Chicago deposition?

A. Yes, sir, I said so, but its getting into such a ridiculous statement made me think over it because on that basis morphine would also be a food. So it is evident that the definition is wrong, that it enables us to classify morphine as a food, which reduces it to an absurdity.

Q. Didn't you say this in your Chicago deposition?

The Court: He says he did.

A. I said it was a food to that extent, that it produced energy.

BY MR. SIZER:

Q. The production of energy is one of the functions of food?

A. Of some foods, to some extent.

Q. Of most foods?

A. There is one fundamental thing in a food that has to be. It has to be the raw material out of which the body makes itself, that is a food; it may in addition contribute some to the energy of the body but the essential thing is that it is the raw material out of which the body is made.

Q. Suppose in addition to being a material out of which the body is made, that it prevents the waste of tis-

sue; is not that one of the functions of food?

A. No.

Q. It is not that one definition of a food substance?

A. It may be. There is a great deal of uncertainty about the definition of food, but this definition I have given seems to be the best one.

The Court: Is that definition made up from your reading or is it from your experience?

The Witness: It is my definition.

The Court: Then you cannot read your definitions from the books, Mr. Sizer.

Mr. Sizer: I want to read these definitions——

The Court: If his opinion is not the result of scientific reading, it is not competent for you to read a definition contradicting him. The witness has expressed an opinion as the result of his own experiments and not from reading other works.

BY MR. SIZER:

Q. The purpose of taking food is to replace waste tissues?

A. Yes, sir.

Q. The waste tissues are due to the expenditure of energy?

A. Due to decomposition of substance.

Q. That follows from the expenditure of energy?

A. It results in the expenditure of energy.

Q. And you have to take food in order to keep up the equilibrium and replace the tissue-waste produced by the expenditure of energy?

A. By the decomposition of substances in the cells energy is set free and these substances are wasted and you have to replace them.

Q. And if you get a substance that enables you to expend a certain amount of energy with less effort, does not that class as a food?

A. No, sir.

Q. Why not?

A. Not on my definition.

Q. I am trying to convince you your definition is not a sound one.

The Court: I do not see how the question of whether this witness' definition is sound or not, is important. This case does not involve a definition of the word "food." If it did, the Court would instruct the jury as to what the word means.

BY MR. SIZER:

Q. Is starch a food under your definition?

A. Yes, sir.

Q. Does it build up the body?
A. Yes, sir.
Q. In what way?
A. It forms glucose which is built into the tissues of the body. It is derived from one of the substances from which living matter is made.
Q. Now, you are quite a considerable consumer of caffeine yourself, are you not?
A. I was at the time I testified in Chicago.
Q. At that time you took four or five cups of coffee a day?
A. I took two cups of coffee and two or three cups of tea.
Q. About four or five cups of tea and coffee combined, a day?
A. Yes, sir.
Q. From eight to nine grains of caffeine?
A. It was a considerable quantity.
Q. And you have been doing that for a number of years?
A. Just at that time I was taking more than usual but I have been taking very considerable quantities for a number of years—yes.
Q. Did you not testify in that deposition that you had been taking that same quantity daily for a number of years past?
A. Yes, sir; that was the case.
Q. And since then?
A. Yes, sir; I cut it down.
Q. When did you cut it down?
A. Your questions on the subject set me to thinking and my reading aroused by doubt, besides.
Q. And so I persuaded you that you had better quit it?
A. You did not persuade me but you set me to thinking about it. I knew that periodically I had to give it up.
Q. You are an expert chemist and knew all about those things and it never occurred to you that you ought to give it up, until your deposition was taken?
A. I knew that periodically I had to give it up. I would get too nervous.
Q. How much do you take now?
A. Just one cup of coffee.
Q. Just once a day?
A. Yes, sir.
Q. How long have you been keeping that up?
A. I think I began that the day after your examination.
Q. You just take one cup now?
A. Yes, sir.

Q. You testified, I believe, that caffeine passes through the system and through the urine as caffeine?

A. In part it does.

Q. In what part.

A. A small per cent.

Q. A very small per cent., is it not?

A. Yes, sir; a small per cent.

Q. Do you testify to that from experience or from reading?

A. From reading.

Q. You have made no experiments to ascertain for yourself how that is?

A. No, sir.

Q. Is it not a fact that even in small quantities caffeine will not pass through and appear in the urine unless large quantities are taken?

A. No, sir; I could not say that it would not appear.

Q. But you could not say that it would or would not?

A. No, sir; I could not say as to that.

Q. The only experiments you have conducted were experiments with animals, is not that true—I mean, as to caffeine?

A. Yes, sir; except my observation of myself.

Q. When you drank four or five cups of coffee and tea a day?

A. Yes, sir.

Q. What animals did you experiment on?

A. Frogs, dogs and rabbits.

Q. By subcutaneous injection in each case?

A. Sometimes we put an intravenous injection.

Q. In each case it was taken by the mouth?

A. It was not taken by the mouth.

Q. Was it pure caffeine or some mixture?

A. It was caffeine for the most part.

Q. In all cases, was it caffeine?

A. No, sir; sometimes we used a salt of caffeine.

Q. What kind of a salt?

A. Citrate or hydrochloride.

Q. The citrate of caffeine is not a salt at all?

A. Yes, sir, it is a salt.

Q. Is it not a mixture of citric acid and caffeine, not a chemical compound?

A. No, sir.

Q. You used the citrate of caffeine?

A. Yes, sir.

Q. Not a chemical compound—was it a chemical compound?

A. I regarded it as such.

Q. Now, do you know whether it is a chemical compound or whether it is simply a mixture of the two pure substances, caffeine and citric acid?

A. It is generally recorded as a loose combination. The fact that its solubility—that the caffeine's solubility so strongly alters the basic properties of caffeine, indicates that it is a chemical compound.

Q. Are you prepared to express a positive opinion as to whether the citrate of caffeine is a chemical combination or simply a mixture of citric acid and caffeine?

A. My opinion is that it is a combination, but I never particularly examined the matter.

Q. In fact, you cannot say positively whether it is or is not, can you?

A. No, sir; I do not know that I want to make a positive statement on that question.

Q. Did you ever make any experiments on yourself to find out whether eight or nine grains of caffeine that you were taking in the form of tea and coffee, passed through your body and appeared in the urine?

A. No, sir; I have never examined that.

Q. You never examined it with any human being?

A. No, sir.

Q. Did you express the opinion on your examination in chief that caffeine had the effect of coagulating the muscles of the human body?

A. The question was asked by the attorney in a very awkward way—begging his pardon for stating it that way.

Mr. Miller: I take the blame if it was on me.

The Witness: I didn't intend to state it in just that way.

BY MR. SIZER:

Q. You did not intend to state that?

A. No, sir.

Q. If caffeine produces any coagulation, it is so small you cannot notice it?

A. In the human body?

Q. In the human body.

A. In the human body they will be killed by the action of the caffeine on other parts of the body before the muscular action showed itself.

Q. The question ask you is, is it not true that coagulation of the muscles is not produced in human beings by the use of caffeine?

A. I do not know of any case that it has been shown to have been so produced.

Q. Then so far as your knowledge and expert opinion goes, it is not so produced?

A. No; my opinion is that in human beings it will not be produced under ordinary conditions of administration.

Q. A great many substances will produce coagulation of the muscles when brought in contact with them that will not produce that effect when taken through the mouth?

A. It happens that the muscles ordinarily are more resistant, and you kill an animal by the action of the drug on the central nervous system before you get enough to the muscle to produce the effect on the muscle.

Q. For instance, if you apply distilled water to an exposed muscle, it would produce coagulation?

A. Yes, sir.

Q. It would not if you took it by way of mouth?

A. No, sir.

Q. What was that you said in your direct examination about a breath of air throwing an animal which had taken caffeine, into a spasm?

A. I thought when I said that that it would have been better to have left it out.

Q. Rather an extreme statement?

A. It is a statement that is made in the textbooks that has gotten into my head and in that way came out.

Q. That is an extreme statement?

A. Rather extreme.

Q. In reply to the question as to whether caffeine was a poison, your definition of a poison embraces a good many substances, does it not?

A. Yes, sir.

Q. For instance, spices, pepper, cane sugar, chocolate, are all poisons according to your definitions?

A. No, sir.

Q. Didn't you so testify in your definition in Chicago?

A. No, sir.

Mr. Miller: I object to that. He is giving his definition now.

Mr. Sizer: He has not given any definition here.

The Court: I do not recall that he has given any definition of a poison. You may ask him for his definition.

BY MR. SIZER:

Q. Didn't you testify in your deposition in Chicago that spices and pepper and ginger were also poisons?

A. No, sir. I can tell you what I did testify to, if you desire me to. I stated that they contained a toxic principle.

Q. Now, didn't you say that a poison was any substance which was not normally contained in the body?

A. Which acted upon it chemically.

Q. Didn't you say that pepper was not a normal constituent of the body?

A. I do not remember whether you asked that particular question.

Q. Do you say now that pepper is a normal constituent of the body?

A. No, sir.

Q. Then is it a poison?

A. No, sir.

Q. Then your definition is not correct?

A. It contains a toxic principle. Pepper is not a chemical individual.

Q. You say pepper is not a chemical?

A. It is not a chemical individual.

Q. What do you mean by chemical individual?

A. I mean a chemical compound, so-called, in the ordinary sense.

Q. You say that pepper is not a chemical compound?

A. No, sir.

Q. Is it a drug?

A. Yes. I presume it would be called a drug.

Q. To come to your definition of a poison again, arsenic is a normal constituent of the human body?

A. It is—it has, I believe, been found in the human organs.

Q. It is found in the nails and various other parts of the body?

A. It has been found there.

Q. It is a normal constituent of the body?

A. A good many things are found there that ought not to be there.

Q. Don't you know that arsenic is one of the necessary constituents of the nails and certain other parts of the body?

A. No, sir.

Q. And of the hair?

A. No, sir, I do not know that.

Q. You do not know that?

A. No, sir.

Q. Do you know whether that is true or not?

A. I believe that it is the case that small quantities are found.

Q. Would you say arsenic is not a poison?

A. No, sir.

Q. So that your definition of a poison does not cover all poisons and it does cover some things that are not poisonous?

A. It cannot cover anything that is not a poison, but there are some things left out that under another definition might be called poisons.

Q. Do you mean to say that everything that contains a toxic principle in any quantity is a poison?

A. It contains a toxic principle.

Q. And is that a poison, do you say?

A. No, sir. A toxic principle is a poison, though.

Q. But every substance that contains a toxic principle is not necessarily a poison?

A. It contains a poison.

Q. Is it itself a poison?

A. No, sir.

Q. A great many substances given as articles of diet contain toxic principles?

A. Some of them do, certainly.

Q. For instance, acetic acid is a toxic principle, is it not?

A. Under my definition acetic acid was excluded as a poison.

Q. It would not take much of it to kill a man, would it?

A. I could not say as to that. It would take considerable, I think—it would depend on the dilution.

Q. Why do you say it was excluded under your definition?

A. I excluded it because acetic acid is found in so many organs of the body.

Q. And because it is found in some organs of the body, although a small quantity of it would produce death, you say it is not a poison?

A. A small quantity would not produce death.

Q. How much does it take?

A. I don't know.

Q. How do you know that a small quantity won't?

A. You can take a considerable quantity of vinegar and not produce death.

Q. How about hydrochloric acid?

A. What do you mean?

Q. Is that a poison?

A. Hydrochloric acid is a poison,—under my definition it would not be a poison if it could be shown to be a normal constituent of the cells of the body.

Q. As an expert, I ask you is hydrochloric acid a poison or not?

A. Under that definition if you can show it is a normal constituent of the cells of the body, it would not be a poison.

Q. I am not undertaking to show you. I want you

to show me. Do you say as an expert that hydrochloric acid is or is not a poison?

A. I say I do not know whether hydrochloric acid is or is not found in small amounts in the cells of the body.

Q. It is formed in the body?

A. It is a normal secretion from the mucous membranes of the stomach.

Q. How much hydrochloric acid would it take to kill a man.

A. I don't know.

Q. A very small amount?

A. I could not say as to that.

Q. You say acetic acid is a normal constituent of the body?

A. Yes, sir. Acetic acid I believe to be a normal constituent of the body.

Q. How does it appear and where?

A. It is found in all the tissues and cells of the body, or the monoderivative is.

Q. The derivative is found, but the acetic acid is not found?

A. There are always found in the cells a substance that will strip off the monogroups and set free the acetic acid.

Q. Are you familiar with the substance theobromine?

A. No, sir; I am not famiilar with theobromine.

Q. That is very closely allied to caffeine, is it not?

A. Yes, sir.

Q. It is an alkaloid found in chocolate, is it not?

A. Yes, sir.

Q. And in cocoa?

A. Yes, sir.

Mr. Miller: I submit that was excluded and I object to it:

Mr. Sizer: Your Honor said we could not inquire about theobromine until we showed its connection with caffeine. We have shown it by this witness.

The Court: This witness says he is not familiar with it.

Mr. Sizer: He says it is closely allied to caffeine.

The Court: That may be true and yet he may not be familiar with it.

BY MR. SIZER:

Q. Do you know whether caffeine is found in chocolate?

A. My recollection is that there is a small amount of caffeine in it.

Q. To refresh your recollection, is it not true that there is 28/100ths of one per cent. in chocolate as used as a beverage?

A. I have not looked the matter up.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. When you speak of a toxic principle contained in certain food, what do you mean?

A. I mean that it is a substance that produces deleterious effects and which is not found normally in the cells.

Q. How if at all is that extracted and converted into what we term a poison?

A. I am using the word really in the sense of a poison.

Q. What is the toxic principle in pepper about which you were asked?

A. I had in mind pepperedeen,—p-e-p-p-e-r-e-d-e-e-n.

Q. Pepperine?

Mr. Sizer: I would like for Mr. Miller not to lead the witness.

The Court: The objection is sustained.

Mr. Miller: I am trying to ascertain whether it is the difference in pronunciation.

Mr. Sizer: Let him spell it and we will find out.

Mr. Miller: I asked the witness to spell it.

The Witness: I call it pepperedeen.

BY MR. MILLER:

Q. Spell the substance you think is the toxic principle of pepper.

A. I suppose it was pepperedeen, but I may be wrong in that matter. I am not very familiar with that particular subject.

Mr. Miller: Do you gentlemen want it spelled or not?

Mr. Sizer: We don't care.

BY MR. MILLER:

Q. According to that statement made by textwriters that after a frog had been given caffeine, a breath of wind blown against him might throw him into a spasm, you say that statement was perhaps an extreme statement. Now, I will ask you to state whether or not in that connection from your experiments, matters which under normal conditions would not drive a frog into that condition, would precipitate that action after he had received caffeine?

A. Oh, yes; certainly.

Q. Can you give us an example of some instance that would produce that effect?

A. Any jar or touching the animal might throw him into a spasm.

Q. What is the reason for the breaking up of the caf-

feine after it enters the body, or the demethylization of it as it is termed, Professor Matthews?

A. I beg your pardon?

Q. I say, what is the reason or the occasion for the breaking up process of caffeine after it enters the body?

A. That is a question that we do not ask in physiology.

Q. Do you know or are you prepared to say that is nature's effort to throw off the caffeine?

Mr. Sizer: He has already said he did not know, that that is not a question that comes up in his expert experience and I submit that this question is not competent.

Mr. Miller: I don't think he said so.

Mr. Sizer: Read his answer then.

The Court: I don't think his opinion would be competent on that.

Mr. Miller: Note an exception. I called for his opinion on the point and I submit it is competent.

The Court: I do not think it is a question of expert knowledge.

BY MR. MILLER:

Q. Are there any xanthine bodies in our food in a pure state that you recall?

A. You mean to say, do we get any xanthine bodies in our food?

Q. I don't mean that, but I mean if we get any free or pure xanthine, in the xanthine form?

A. I presume we get a small amount in our meat.

Q. Is that free or in combination?

A. That is free, presumably.

What functions do they perform after entering the body?

A. I beg pardon?

Q. What purpose does it serve after it enters the body?

A. As far as I know it does not serve any purpose.

Q. State whether or not there are certain, what are termed "waste-products," in the body as the result of foods.

A. Certainly.

Q. Does or not xanthine belong to that class?

A. Xanthine is such a body.

Q. Now, as to the production of energy. State whether or not such substances as alcohol and cocaine and morphine produce energy after taken into the body, or liberate energy.

A. Alcohol and morphine do. I do not remember about cocaine.

Q. What was the effect of this taking of coffee and tea on you in the consumption in which you used it—you say you did take quantities up to the time of your exami-

nation some months ago, now what was the effect on you?

A. I was decidedly nervous. That may have been simply one of the contribuative causes to it, however.

Q. What, if any, were the observable effects that convinced you you would periodically have to give it up?

A. Nervousness.

A. Are you prepared to state that that condition which is described as nervousness, is deleterious or beneficial to human health?

A. It is very disagreeable to the person who has it.

Q. Is it beneficial to health or otherwise?

A. No, I should say it was detrimental. It is a condition of un-health in itself.

Q. State whether or not these departures from the normal in the muscles, heart, brain and the spinal cord, which you have described, would influence the health of a person, and if so, in what respect.

Mr. Hirsch: That has been ruled out once, not quite in that form. It is calling for the conclusion of the witness. He has stated what it would cause, and the jury can pass on the rest of it.

The Court: I only ruled on the question of the witness applying epithets. I have not ruled on the question now presented, which is, what would be the effect on the general health of a person.

Mr. Miller: Yes, that is the question.

The Court: And that is a different question and I overrule the objection.

Mr. Hirsch: Give us an exception.

BY MR. MILLER:

Q. What would be the effect on the health in cases of departure from the normal, as you have described it, might result from the use of caffeine?

A. Repeat that question again.

(The question was read by the stenographer as follows: "Q. What would be the effect on the health in cases of departure from the normal, as you have described it, that might result from the use of caffeine?")

A. That question is not clear to me.

Q. I will try to make it clearer. I understood you to tell, to state, what would be the effect on certain functions, namely the muscles, the heart, the brain, and the spinal cord, of a consumer of caffeine.

Mr. Sizer: That has already been fully gone into on the examination in chief, and the witness has stated the effect on each of those organs.

Mr. Miller: That is true.

The Court: The object is to ask the witness what would be the effect on the general health of a person.

Mr. Sizer: That was the first question and the witness said he could not answer.

The Court: I do not recall that he has been asked that.

Mr. Sizer: Mr. Miller asked him and he said he could not answer, then Mr. Miller put it in a short or separated form.

Mr. Miller: No, sir; he convicted me of not making myself clearly understood.

The Court: Go on.

BY MR. MILLER:

Q. Now, I will ask, assuming those normal departures you describe resulted from the use of caffeine, and assuming that from the use of caffeine there is a departure from the normal, in the case of those four organs, what would be the resultant effect on human health?

A. It would be detrimental.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. I believe you say the only experience you have had with the use of caffeine, so far as the human being is concerned, is in the form of tea and coffee?

A. Yes, sir.

Q. Is it not a fact that it is a much-disputed question in medical literature as to the effects of tea and coffee on the health?

There is certainly some difference of opinion about it.

Q. I want to read you from Hutchinson on Food and Dietetics and assume if this is true——

Mr. Miller: We object to the reading. I object unless we are allowed to read from the same work. I submit this witness is not basing his opinion on the reading of medical literature in the first place, and in the next place, your Honor has ruled that we shall not be permitted to refer to that.

The Court: That is not involved in this matter.

Mr. Miller: I am making the objection in view of that ruling.

The Court: This question is entirely different. You object to this because he has not expressed an opinion as to the scientific works.

Mr. Miller: Based on medical literature.

The Court: I think this witness has stated that there is a difference of opinion on that question, and I think it is not proper to interrogate him as to these expert writers

who have one opinion as against another opinion. The witness has practically stated that there is a difference of opinion.

BY MR. SIZER:

Q. Is not this true, that all the works on food and dietetics hold the most that can be said against the use of tea and coffee is that nervous people ought not to use it to excess—is not that true.

Mr. Miller: I object to that because in the first place that don't contradict the witness, and in the second place, he has not based his opinion, as given here, on any of the text writers on that subject, and it has not been limited to that.

Mr. Sizer: I am asking that——

Mr. Miller: (Interrupting.) Assuming that authorities state that, which I do not concede, that would not impeach him.

Mr. Sizer: I am not impeaching him. I don't have to ask questions all the time to impeach him.

The Court: So far as doing that, it is really direct examination in the line of cross-examination, bring out new matter, attempting to suport it by a satement of what the authorities say.

Mr. Miller: Our testimony was as to his observations and he has given an opinion based on that, and now they propose to ask him about some medical writer, if he didn't say something.

Mr. Sizer: I submit that the witness has based his opinion as much on reading as on personal experience as he has stated he based his experience on what he read.

Mr. Miller: That may be true as to tea and coffee, but not as to caffeine.

Mr. Sizer: He says he don't know anything about caffeine except as in tea and coffee.

The Court: What is the precise question.

Mr. Sizer: If the literature don't hold that as to tea and coffee, nervous people should use them sparingly.

The Court: What does that contradict?

Mr. Sizer: It don't contradict him but limits his testimony, and he said he bases his testimony largely on literature.

The Court: Testimony as to what?

Mr. Sizer: As to tea and coffee.

The Court: He has not made any statements as to tea and coffee, its effect on general health. He has made a statement as to caffeine. Then he made one statement that it would be detrimental to health, that he has found that in his experience. That is all I recall.

Mr. Sizer: But on cross-examination he said all his experience as to caffeine was limited to tea and coffee, and now I ask him a question as to what the literature says as to the effect of tea and coffee.

The Court: I don't think this witness has attempted to give any opinion from any text writers based on reading as to the effect of tea and coffee on the human system. I do not recall it and I exclude the question.

Mr. Sizer: He has only stated indirectly, but if your Honor rules that way, I do not care to pursue the testimony further. He did state all he knew about caffeine was from his own experience with tea and coffee.

BY MR. SIZER:

Q. Now, you speak of some animal that had taken caffeine and was driven into a spasm under certain conditions?

A. Yes, sir.

Q. That was an animal into which you had injected caffeine?

A. Sub-cutaneously.

Q. You say you do not know whether xanthine has any function in the body?

A. I do not know whether it has or not.

Q. Is it not recognized in the literature as a stimulant mostly?

A. There are statements in the literature that it acts on the muscles.

Q. Acts as a muscle stimulant; is not that true?

A. I do not recall seeing the word "stimulant" used in that connection.

Q. If it acts on the muscle, it stimulates them, would not that be the natural assumtion?

A. Well, its action is one of coagulation, so far as I have seen the statement in the literature.

Q. You have stated that don't apply to a human being, the coagulation of muscles?

A. No, sir. I stated that it probably would not be possible to inject a sufficient amount of caffeine into a human being to produce muscle coagulation, because you would kill the person first.

Q. Now, is it not true that xanthine, as found in the human body, does act as a muscle stimulant?

A. It may so act.

Q. You do not know whether it does or not?

A. I do not know whether it does or not.

Q. If it does so act, that would be a stimulant—a function?

A. Yes, sir; that would be a normal stimulant of the muscles if it acted that way.

Q. Caffeine produces xanthine, or is broken up into xanthine in the body, among other things?

A. I have already replied as to that.

Q. That you do not know whether that is true or not?

A. That I have not been able to satisfy myself on that.

(Witness Excused).

W. McQUILLEN,

the next witness produced on behalf of the United States, of lawful age, first duly sworn was examined in chief and testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Where do you reside?

A. Chattanooga.

Q. How long have you resided in Chattanooga, Tennessee?

A. Nearly fourteen years.

Q. What is your profession?

A. Physician.

Q. Are you a licensed practitioner in the state of Tennessee?

A. Yes, sir.

Q. What has been your experience as a practitioner of medicine?

A. An experience extending over some twenty-seven years.

Q. Where were you educated and where did you receive your degree?

A. I graduated in the University of Dublin, Trinity College, Ireland.

Q. Then, where else?

A. After that I studied about eight months in Paris and then about two years in Germany and in Vienna, Austria.

A. Are you a member of the Medical Association of the State of Tennessee?

A. Yes, sir.

Q. Are you a specialist in any character of disease, if so, what?

A. I have made a special study of nervous diseases.

Q. Can you explain to us by what is meant by so-called nerve stimulations?

A. There are many forms of stimulation. A stimulant is originally something that puts a thing on action, and so would excite some of the nerve vessels, and would excite

some of the mechanical vessels—it might be divided into a great many things.

Q. State how long you have been a specialist in nervous diseases or disorders.

A. I have made a specialty of that the last ten or twelve years.

Q. Did you hear the testimony of Dr. Formad on yesterday morning?

A. Yes, sir.

Q. Did you hear what he said with respect to what he termed chromotolysi?

A. Yes, sir.

Q. I will ask you whether this condition of chromotolysi is found in any form of nerve disease and if so, what?

A. It is found in many examinations where there are pathological lesions of a nerve.

Q. Can you instance some form of nerve trouble or disease where it is found.

A. Myalitis.

Q. What is that?

A. Inflamation of the spinal cord.

Q. Any other?

A. Polio myalitis.

Q. What is that?

A. An acute affection of the gray matter of the interior cornea of the spinal cord.

Q. Any other?

A. I expect there are a good many others but I won't be positive about that. I know of those two and I think it might occur as the result of pathology or invasion of the system by any pathogenic bacterior or poison.

Q. State whether or not you have treated any patients who were affected by the use of Coca-Cola, about October, 1909, imediately subsequent or prior to that time, here in Chattanooga.

A. I have observed in several cases the effects of Coca-Cola on patients.

Q. What were the observable effects?

A. Where it was taken in excessive quantities, it produced nervousness, loss of power—the retentive faculties, sleeplessness, gastro-intestinal disturbances, arhyphmia, irregularity of the heart.

Q. As respects this term of excessive quantities, I pass you the analysis of Coca-Cola syrup, as made by Dr. Fuller, and I ask you to note that, and state whether or not the amount of caffeine, as there shown, in your opinion, might or would produce symptoms in individual cases of

consumers, where they have taken from one to two ounces of the mixture?

A. Yes, sir, I think it might.

Q. On what would the observable symptoms depend? If they would be affected by any other condition, tell what.

A. Repeat that question, I did not catch it.

Q. If the observable symptoms would be intensified or decrease as the result of any other condition of health, or anything of that kind, tell what the effects would be as to intensification or increase?

A. If the patient were already suffering from nervousness, it would of course be intensified by that, or if they were young.

Q. What about the affections of the heart?

A. Certain affections of the heart might be more influenced.

Q. Would or not these results that you have described that might attend the consumers of Coca-Cola affect human health and if so, how—I mean to say injuriously or beneficially?

A. Well, if the patient were just in a condition that a dose of caffeine would be indicated in his case, he might go in and get the Coca-Cola and that might be prescribing for himself and it might be of some benefit in that case, but I would think in most cases of nervous temperament, it would be deleterious.

Q. Is caffeine or not sometimes prescribed as a drug?

A. It is prescribed as a drug.

Q. For what forms of trouble?

A. It is prescribed frequently in arhythmia, irregularity of the heart.

Q. State whether or not during the year 1909, and during October, or sometime prior thereto, you had occasion to observe the sale and distribution of Coca-Cola in Chattanooga?

A. Yes, sir, I see it daily.

Q. At what places is it sold and dispensed?

A. I have seen it in the drug stores and at the soda water fountains.

Q. Was it sold at that time at the drinking fountains of Chattanooga?

A. As well as I remember, yes sir.

The Court: It was generally sold throughout the city. There is no denial of that.

BY MR. MILLER:

Q. State whether or not there was any discrimination in the selling of it in this city at that time or at any time.

The Court: That has been proven and it is not denied.

Mr. Miller: I knew it was as to other territory.

The Court: This particular town is like any other town.

Mr. Miler: Then I withdraw the question.

Q. I will get you to state whether or not you have had occasion to observe the manner in which it was dispensed when called for at these drinking places, and how it was dispensed.

A. Sometimes I think there was perhaps an ounce in it—perhaps; variable quantities appear to have been dispensed in the glasses.

Q. State whether or not you observed as to its consumption by children.

A. I have noticed children taking it.

The Court: There is no dispute about that, Mr. Miller.

Mr. Miller: There was a great effort to dispute that in the testimony originally.

The Court: Until it is disputed you need not go into that.

Mr. Sizer: What was that?

Mr. Miller: Is there any dispute about children taking Coca-Cola?

The Court: Yes; if there is no dispute you need not go further into that.

Mr. Sizer: We say they can get it if they want it, but as a general rule they do not care for it.

Mr. Miller: I am trying to show they do take it and care for it by this witness.

The Court: You are trying to prove the general fact that Coca-Cola is sold without restriction to adults and children. That has been proven repeatedly. If you want to show to what extent children drink it, differing from that general custom, you may go into that.

Mr. Miller: That is what I desire to show.

BY MR. MILLER:

Q. I will ask you whether or not you had occasion to pass fountains and attend at fountains, baseball games and other places where children congregated here in Chattanooga, during the year 1909, and immediately prior and subsequent to October, and if you had opportunity to observe, to what extent was Coca-Cola called for and consumed by children.

A. As far as that is concerned I could not say—it was served to children. I have known them from ten to twelve years of age and seen them take it.

Q. To what extent as compared to other drinks taken

by children?

A. I am not prepared to make a statistical report as to that.

Q. Was that consumption large or small relatively?

A. I have known children to take two and three drinks a day, in a day.

Q. What is the effect of Coca-Cola on you, Doctor?

A. It makes me restless and nervous to take it in the evening; sleeplessness.

Q. How much do you say you weigh?

A. About 220 pounds.

Q. What is your age?

A. Fifty-three.

Q. Now, you say it makes you restless during the evening. State whether or not that prevents sleep.

A. Yes, sir; it prevents sleep, if I take enough of it.

Q. What is the effect of that on human health, sleeplessness?

A. Well, there is no restoration of the nervous force where there is an interruption of sleep; it is bad for the recuperative forces.

Q. Is that beneficial or detrimental to health?

A. Detrimental, I would say.

Q. State, Doctor McQuillan, if you have had occasion to observe the incoming street cars of a morning when the shop girls and the clerks and the working classes come in on the cars from their residences and alight near the drug stores in Chattanooga.

A. Yes, sir; I have.

Q. State what is the relative popularity of this drink known as Coca-Cola at the fountain on such occasions.

A. I can't give the real statistics, but everybody knows who sees, that it is a matter of—

Mr. Sizer: Now, I object to what everybody knows.

BY MR. MILLER:

Q. Tell what you know and do not tell what others know.

A. As far as I can see it is a very popular drink, and a great many or a large proportion of the orders are for Coca-Cola.

Mr. Miller: You may cross-examine him.

CROSS-EXAMINATION, BY MR. SIZER:

Q. Doctor, you say you are a nerve specialist?

A. I have made a special study of diseases.

Q. As the result of the study of nervous diseases which you have made, you have reached the conclusion that 99 per

cent. of the human race are insane, have you not?

A. I never made that statement.

Q. Did you ever make a statement on the witness stand in court as to the percentage of the human race that were insane or non compos mentis?

A. I will give you the statement I made, if you want it.

Q. Well, all right.

A. The statement I made was—I was asked how many people were in perfect health and perfect mental equilibrium, and I stated: "If you took perfect health and perfect mentality, not over five per cent. that would be in perfect health," that was the idea I tried to convey.

Q. That is, that only five per cent. were in good condition and 95 per cent. were not?

A. I said perfect, I was not talking anything about being in good condition.

Q. You meant mentally or physically?

A. I said mentally and physically together.

Q. And you expressed an opinion that mentally and physically, not more than five per cent. of them were in perfect health?

The Court: That is enough.

BY MR. SIZER:

Q. Are you a member of the local medical society?

A. Yes, sir.

Q. Was there ever a time that you were not?

A. Yes, sir; there was a time when I was not.

Q. There was a time when you were expelled?

A. Yes, sir.

Mr. Miller: I do not see the materiality of that.

The Court: I think he can ask that.

BY MR. SIZER:

Q. The fact is, Doctor, that at one time you were a follower of the tenets of one Dr. H. Gibson O'Neil?

A. The fact is, sir; I was not; I was making observations upon the use of light.

Q. The fact is you were the manager of Gibson O'Neil's local establishment?

A. No, sir; I was not.

Q. You were not?

A. No, sir. You are totally misinformed upon that subject.

Q. Were you in charge of that establishment as an examiner?

A. Yes, sir; I examined some of the patients that came there.

Q. Then you had charge of the local establishment?
A. No, sir.
Q. Who was in charge of it when Doctor O'Neil was gone?
A. I think some others—I don't know who, to examine patients.
Q. You turned the light on them?
A. No, sir.
Q. Well, who turned the light on them?
A. I don't know, sir.
The Court: That is immaterial.
Mr. Sizer: We want to get at the principles of that O'Neil clinic.
The Witness: All right.

BY MR. SIZER:

Q. Doctor O'Neil had an idea that you could cure a man of disease by putting him in a cabinet and shining a light on him?
A. Well, I don't know.
The Court: Just get Dr. McQuillan's ideas.
Mr. Sizer: I wanted to show that he was a follower of Doctor O'Neil.
Mr. Miller: He said he was not.

BY MR. SIZER:

Q. That was the principle or the idea of the cure, the theory of the cure, was it?
A. I did not understand that.
Q. By shining a light on a man, that you could cure him of a disease?
A. Well, for the last 25 years, especially in Germany and in Paris, there have been a great many observations by exposure of the human body to light. And there have been a number of observations in this country, and they have been used in this country, the electric light application to the human body, for the last twenty or thirty years.
Q. I say that is the theory of the cure?
A. I don't say that is any theory of a cure.
Q. That you could cure a man by shining a light on him, the color of the light being varied according to the nature of the disease?
A. No, sir.
Q. Didn't you shine a red light on him for certain disease?
A. No, sir.
Q. And a violet light for certain things?
A. No, sir.

Q. How is that?

A. His theory was that the two colors have practical benefit which is a perfectly scientific idea. He thought that the green light and the red light were particularly beneficial in some kinds of diseases, but I did not—

Q. I say, the man that established that school of medicine in Chattanooga, you were a member of that school?

A. He didn't establish any school of medicine because it was not the original idea with him.

Q. Well, he had a sanitarium or place down here where he treated people?

A. Yes, sir.

Q. And you were there in that place?

A. I was there observing the experiments he was making.

Q. And you were examining the patients as they came in?

A. Yes, sir; for a while, not all the time.

Q. Didn't you prescribe whether a red light or a green light or a violet light should shine on a man?

A. That merely exists in your imagination; I never did any such a thing.

Q. Did you ever shine a light on a patient, Doctor?

The Court: That is sufficient.

Mr. Sizer: I want to show—

The Court: (Interrupting.) I say, that is sufficient.

Mr. Sizer: I will ask this question, with your Honor's permission—

BY MR. SIZER:

Q. As to the result of your affiliations with Dr. O'Neil and your connection with the light theory cure, is it a fact that the medical association in Chattanooga here expelled you?

A. Yes, sir; for the reason that we differed upon our idea of the code of ethics; they thought I was transgressing and I knew I was not.

Q. How long since they took you back into good fellowship?

A. I think I have been back—some of their secretaries can tell you, if they are here—

Q. Well, about how long?

A. Three or four years.

Q. And that occurred some five or six years ago?

A. Yes, sir.

Q. And you were out of harmony two or three years on account of that?

A. No, sir—not any disharmony at all. It just came

on over the question of what the code of ethics meant, just a legal question.

Q. You say you have drunk Coca-Cola?

A. I have.

Q. To what extent?

A. Well, maybe I have taken about ten or fifteen drinks of it.

Q. A day?

A. Oh, Lordy no!

Q. You say you have not taken that much a day?

A. No. I would not look like I do now if I did.

Q. How much have you taken in the course of a day?

A. I have taken two drinks that I remember one day, one in the morning and one in the evening.

Q. Do you drink tea and coffee?

A. I drink a small quantity of coffee.

Q. About how much in the course of a day?

A. I absorb about one grain and one-fifth of caffeine per diem.

Q. How many cups of coffee?

A. A cup has nothing to do with that ——

Q. You didn't measure the caffeine that you took—you don't measure the caffeine that you take in every cup of coffee?

A. I am able to—

Q. (Interrupting.) You take one cup of coffee?

A. Yes, sir.

Q. And a cup of coffee contains from one and a half to three grains of caffeine?

A. I think you might put three grains in it, but three grains is not usually—in a five-ounce cup of coffee it would not taste very well. The average would be about one and a half.

Q. The average would be about one and a half?

A. One and a half to one and a fifth.

Q. Did you ever analyze a cup of coffee to establish that?

A. That is an established fact.

Q. Did you ever analyze it so as to know by analysis?

A. No, sir.

Q. So that is a sort of off-hand opinion?

A. Well, yes.

The Court: As I understand, it is conceded as a general proposition that an ordinary cup of coffee contains about one and a half grains of caffeine.

Mr. Sizer: We have had a number of cups analyzed.

The Court: Do you dispute that?

Mr. Sizer: We say that a grain and a half is the mini-

mum, and that it goes up to two and three grains.

Mr. Miller: We think that the average cup is about a grain and a half.

Mr. Sizer: We say that is not the average but the minimum.

The Court: Well, I just thought there was no dispute about it.

Mr. Sizer: I think there is some dispute—

Mr. Miller: I will state in this connection that I understood as to questions as to tea and coffee, all those questions were considered as objected to, and I understood your Honor in ruling, that it was not necessary to repeat them—I wish to be quite clear about that. I object because I submit it is irrelevant and incompetent, and I understood your Honor to rule you admitted it because it showed that it contained some caffeine, for what it might be worth in your final summing up; but I did not wish throughout this record to rise and object to every question, and I want the record to show that it is understood that I am objecting to all questions on this point.

The Court: I think you did that when I overruled the exception, and it is understood it is not necessary for you to repeat it every time.

Mr. Miller: I desire to have the exception go as to the testimony on that point.

The Court: Yes.

BY MR. SIZER:

Q. Do you undertake to say that you ever saw a glass of Coca-Cola served at a soda fountain with more than an ounce of sprup in it?

A. Yes, sir, I think I have.

Q. How do you know that?

A. I will tell you, sir; I went in and called for a glass of Coca-Cola and he put the syrup in the glass, before he added any of this water to it, this seltzer water to it. I asked him to give it to me and I put it in a two or three ounce bottle and there was an ounce and a half of it.

Q. What particular drug store was that?

A. That was on the corner of Sixth street and Market.

Q. Do you know whether that was pure Coca-Cola syrup or whether it had been diluted with simple syrup?

A. It was the Coca-Cola syrup that he drew out.

Q. I say, you do not know whether that was the pure syrup as it was furnished to the druggist or whether he had diluted it with simple syrup before he put it in the fountain.

A. It might be diluted to fifty per cent. for all I know; that is what I got.

Q. Isn't it true that a great many of the soda fountain

dispensers dilute the Coca-Cola syrup—

A. Would not that be dishonesty?

Q. I say, do you know whether that is a fact?

A. I don't know that the druggists do.

Q. You say that the drug store is at the corner of Sixth and Market street?

A. Yes, sir.

Q. Who is it keeps it?

A. Mr. Embrey.

Q. What was the date on which you got that?

A. Yesterday evening about seven o'clock.

Q. Did you call for an "extra strong"?

A. No, sir. I called for "Coca-Cola." I didn't specify as to how I wanted it.

Q. Now, that is the only occasion on which you have observed more than one ounce of Coca-Cola syrup served in a glass or more than one ounce of syrup served in a glass of Coca-Cola?

A. I would not say the only occasion. I have frequently seen syrup exceed that mark on the glass, the glass being marked for the ounce.

Q. How do you know that?

A. I say I saw that.

Q. Who was it?

A. They say so.

Q. Did the glass that they poured this stuff out for you into have a mark on that glass, to show where the ounce would come to?

A. That is the way I understood it.

Q. It is a fact that Coca-Cola syrup is served generally in simple glasses without any mark on them?

A. Yes, sir; quite possible—I am not authority on the subject.

Q. You are not an authority and do not profess to speak as an authority on the question of how much Coca-Cola syrup is served in the ordinary glass of Coca-Cola?

A. I say, it varies a good deal.

Q. Well, some people do not want but a very little syrup?

A. Yes, sir; that is quite possible.

Q. They want to take a good deal less than an ounce?

A. Yes, sir.

Q. And sometimes a man goes in and asks for a good deal of it and you give him more than an ounce?

A. Yes, sir.

Q. You have seen that?

A. Yes, sir; I think so.

Q. You treated some patients, you say, suffering from

the effects of Coca-Cola?

A. Yes, sir.

Q. Who were they?

A. Well, will I have to mention the names?

Q. Yes. We would like to get the names.

The Court: He may mention them privately to counsel later.

BY MR. SIZER:

Q. You don't know, of course, whether they were taking Coca-Cola except as they told you?

A. No, sir; I do not.

Q. They may have been taking something else in addition?

A. Yes, sir.

Q. You don't know how much coffee or tea in addition?

A. No, sir; only by their statements.

Q. They were not suffering from any mysterious malady, were they?

A. One of them was suffering from a serious malady.

Q. Will you please indicate on that list which one of them was suffering from a serious malady?

A. I mean, that might have had a serious conclusion.

Q. Might have had?

A. Yes, sir.

Q. It didn't result seriously, though?

A. No, sir.

Q. Can you state how many of these patients you treated?

A. I believe I have observed some nine or ten, but I would not specifically state more than two or three.

Q. Two or three?

A. Yes, sir.

Q. That you personally treated?

A. Yes, sir.

Q. You say wakefulness is detrimental to human health?

A. Yes, sir.

Q. Well, sometimes and on some occasions it is quite advantageous to be wakeful, is it?

A. If there was danger of burglary it would be.

Q. Well, what you mean to say and all you mean to say is that if a man habitaully or over a long period of time gets less than the normal amount or sleep, it would be detri mental?

A. Yes, sir; if it went over two or three days.

Q. And different people will be kept awake by different things?

A. Yes, sir.

(Thereupon, at 12 o'clock noon, the Court took a recess until 12:20 o'clock P. M.)

AFTER RECESS.

The Court met after recess at 12:20 p. m.

GOVERNMENT'S EVIDENCE.

JOHN W. M'QUILLAN resumed the stand for further examination, testified:

CROSS EXAMINATION, BY MR. SIZER (Continued.)

Q. Doctor you have stated on your examination in chief something about chromotolysis?

A. Yes, sir.

Q. What was that?

A. Chromotolysis is a change that takes place chromatin.

Q. Well is that the result of germs and bacteria?

A. Sometimes it might be.

Q. Is that nearly always so?

A. I am not prepared to state that.

Q. Do you know of any case of chromotolysis resulting from drug toxicity—

A. No, I have not studied that.

Q. Made no study of that?

A. Now arythmia, that is irregular pulse.

Q. Now, arythmia, that means a lack of rythm?

A. An irregular beat, yes sir.

Q. Now, if you see somethhing that excites you that will cause arythmia?

A. Yes, sir, and then again if you were suffering from arythmia it might make your heart beat irregular.

Q. Sometimes if you work a little too hard, you get tired?

A. Yes, sir, possibly that may cause it.

Q. Is auricular fiburation the cause of arythmia?

A. Well, just explain that term?

Q. Do you know what it is?

A. Well no, not under that term.

Q. And you do not know of course whether it produces arthymia?

A. Auricular fiburation, I would like to have that explained.

Q. If you don't know it under that term or name I will not pursue it?

A. I am not acquainted with it under that name.

RE-EXAMINATION, BY MR. MILLER.

Q. You know what the words mean but you don't know

how or what Mr. Sizer means by it?

A. Well, so many men invent their own terms.

Q. Now, about the administration of light, Doctor O'Neil states whether or not the administration of light, of the turning on of rays of light has been recognized for years by standard authorities as therapeutic agent?

A. Yes, sir.

Q. Now, as to Dr. O'Neil, I will get you to state whether or not it is a fact he had some question raised about irregularity of his conduct here in court and that Mr. Sizer defended him?

Mr. Sizer: I don't think that material but I will admit.

BY MR. MILLER:

Q. I will get you to state whether Mr. Sizer made a very strong statement publicly as to the honesty of Dr. O'Neil?

A. Well, he seemed to be a most outrageously depressed man by the medical profession—

(Witness excused.)

J. F. SHEPHARD,

the next witness called by the United States, of lawful age, duly sworn, testified:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Doctor, what is your age?

A. Sixty-two.

Q. State how long you have lived in Chattanooga?

A. Twenty-five years.

Q. What is your profession?

A. Practicing medicine.

Q. Are you a licensed practitioner in the State?

A. Sir?

Q. I say are you a licensed practitioner?

A. Yes, sir.

Q. Now state whether or not you have had occasion to frequent the places where soft drinks are dispensed in Chattanooga, and where Coca-Cola is dispensed, or where it was dispensed during the year 1909, in the fall of that year?

A. I have for a good many years.

Q. Now, did you have occasion to observe at that time the manner of its consumption? I mean its consumption, the extent of its consumption by children and by young persons? If so, tell what your observations were?

A. Well, I see all classes of people drink it, that is men, women and children. That is mostly with the younger women, a great many of them shop girls.

Q. Did you or not observe to what extent it was consumed by children, that is, persons from 10 to 14, 12 to 15 years of age?

A. I have seen them take it.
Q. Freely or otherwise?
A. Freely or otherwise?
Q. Yes?
A. How do you mean by that?
Q. I mean to what extent?
A. I see a great deal of it; I frequently am at the Live & Let Live drug store.
Q. That is one of the popular drug stores?
A. Yes, sir.
Q. One of the popular soda fountains of the town?
A. Yes, I have a franking privilege there, and I usually take a lemonade and a dish of ice cream most every day.
Now, what were your observations about the time indicated October, 1909, about that time, as to how this drink, coca cola, was dispensed, whether or not it was in variable quantity or whether it was graduated in any way?
A. The custom of the soda water jerker is to put the glass down below the spout or spiket and pump in a certain amount.
Q. Was that or not left to the judgment of the dispenser?
A. Yes, sir.
Q. Now, state whether or not that was the usual and customary method to dispense it here at that time and still is?
A. I think it has been that way all the time.
Q. Have you ever drank coca cola yourself?
A. Yes sir, I have.
Q. Describe its effects on you doctor?
A. Well, a long time ago, that is 12 or 14 years ago.
Q. Don't go into the details, just give it in a general way?
A. It gives me an irritable heart and caused sleeplessness.

CROSS EXAMINATION, BY MR. SIZER.

Q. You say that was how long ago you got an irritable heart?
A. It nearly always does me that, but since my experience with taking it regular, that was 12 to 14 years ago.
Q. You take it regularly all the time?
A. I did for a time, quite a while I took it twice a day.
Q. Do you now?
A. No sir, I average may be a couple of glasses a month.
Q. Do you drink tea and coffee?
A. No sir.
Q. Do you smoke?
A. No sir.

Q. Coca Cola then is the only caffeine containing beverage you ever drink?

A. No, I drink coffee, but not in a long time; I occasionally take a cup of coffee.

Q. How long has it been since you gave that up?

A. Well, for the last fifteen years I have taken occasionally a cup; my family of seven, there is one cup of it drank, and that is by my wife.

Q. You do not spend a great deal of time around drug stores?

A. No sir, not a great deal but I am there almost daily.

Q. About how much time do you spend every day?

A. Probably half a hour.

Q. Every day?

A. Yes, sir.

Q. And you see people come into the fountain and call for various kinds of drinks?

A. Yes, sir.

Q. Isn't this a fact that small children, say under 12 or 15 years of age generally prefer such drinks as chocolate, ice cream and lemonade, sweet things like that rather than coca cola?

A. A great many of them do—

Q. Is that the general rule?

A. Well, with very small children I expect it is, but I see quite a number who take coca cola.

Q. You see a great many young women around there that take coca cola?

A. Yes sir, and boys.

Q. And a great many men?

A. Yes, sir.

(Witness excused.)

S. R. BARNES,

the next witness called by the United States, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION, BY GEN. COX:

Q. Where do you live?

A. In this city, Chattanooga.

Q. How long have you lived in Chattanooga?

A. I have been living here since April, 1908.

Q. What is your occupation now, doctor?

A. I am a manufacturing chemist and pharmacist.

Q. Where did you live the year before you came here?

A. Stevenson, Ala.

Q. What were you engaged in at that place?

A. Same line.

Q. And where the year before that?

A. Bridgeport, Ala.
Q. How long did you live at Bridgeport, Ala.?
A. Between five and six years.
Q. And what were you engaged in at that place?
A. The same thing; with the addition we had a drug store connected with it.
Q. You had a drug store in connection with it?
A. Yes, sir.
Q. And where was that?
A. At Bridgeport.
Q. State whether or not you sold coca cola at your drug store at Bridgeport, Ala.
A. We did.
Q. How long did you sell it?
A. I couldn't say just exactly how long we sold it, but for some time.
Q. Now, state whether or not during the time that you sold coca cola at Bridgeport, Ala., you observed the effect it had on the consumers, or any of them?
Mr. Sizer: I object to that.
Gen. Cox: He said he was engaged in sale of coca cola.
Mr. Sizer: That don't make any difference.
Mr. Hirsch: He would be the same as any lay witness.
Gen. Cox: I am not asking for medicinal effect.

BY GENERAL COX:

Q. State whether you noticed any marked or visible effect upon the consumer of coca cola at that time at your place?
Mr. Sizer: This witnes has not qualified as an expert on that point. He may observe when a man takes a glass of coca cola—he might go out and do something else; he couldn't tell unless he was an expert whether the things he observed were effects of coca cola.
The Court: I am not assuming he will answer about things he does not know—he asked for things he observed, any visible effects, and he can state.
The witness: I did sir.
Mr. Sizer: We except.

BY GENERAL COX:

Q. And how many persons have you observed?
A. It is impossible to tell how many. I noticed it on a great many.
Q. State what those visible effects were?
A. Well, in one case, especially I noticed more nervousness, nuereathenia condition, exhausted and complained of sleeplessness.

Mr. Sizer: He is testifying as to physiological conditions, and I submit he is not qualified as an expert along that line.

The Court: I think that the portion of the answer that states as to complaints is not competent; the witness will limit his answer to the action of the parties as they came in and took coca cola; he may testify if he knows as to their actions but as to what other persons stated to him that is excluded from his answer.

BY GENERAL COX.

Q. Tell, doctor, in detail the things you observed, with reference to this party?

A. Well, one effect was that seeming desire to continue the drink.

Q. Did you observe how many glasses the party drank per day?

A. Well, I could not qualify to the number exactly because I only observed a few during the day but whenever I did observe it I could at least say three or four drinks a day.

Q. Now then, state whether or not by reason of your observation of the effect of coca cola upon consumers you did or did not quit the sale of it?

A. I did. I will say furthermore that I objected to it, to its being sold in our store. There was a disposition on the part of the others to continue it.

Q. State whether or not the consumers call for it upon one day would come back and call for it another day or the same day?

A. Invariably so.

Q. State whether or not since you have been in the town of Chattanooga, during the last year, you have observed soda fountains and parties who were consumers of this coca cola, and if you saw any visible effects upon them, tell what they were not?

A. Not in the city fountains, in town.

Q. Well, where if anywhere?

A. At the stores on the outskirts of town, the suburban parts.

Q. State what you have seen there?

A. My observation is that boys, a great many young boys would drink it; I have seen them drink it from the bottles; I have seen them take it from bottles, and if I am at liberty to state the fact I have observed that they were the incorrigible boys of the neighborhood, the ones who drank it.

CROSS EXAMINATION, BY MR. MILLER:

Q. It is only the incorrigble boys that drank it?

A. I didn't state that.
Q. So far as your particular locality is concerned, that is the kind of boys who drink coca cola?
A. Yes.
Q. Exclusively?
A. I did not say exclusively, no sir.
Q. Now, what business are you engaged in doctor?
A. Manufacturing chemist and pharmacist.
Q. And connected with what firm or house?
A. Chicamauga Manufacturing Company.
Q. What do they make?
A. They make extracts, drugs, groceries sunderies.
Q. What kind of drugs?
A. All drugs used by and sold by grocer's.
Q. What kind of extracts do you make?
A. Flavoring extracts.
Q. Do you make any fountain syrups?
A. Yes, sir.
Q. What kind?
A. Any kind that they want except coca cola.
Q. What for instance, just mention some of them?
A. Lemon, vanilla, strawberry, raspberry, almond, or any flavor they desire.
Q. And chocolate?
A. Yes, sir.
Q. Coffee extract?
A. I have not had the opportunity of making that.
Q. You have not made that?
A. No.
Q. Do you make oil of bitter almonds?
A. We do not make the oil.
Q. Sell it?
A. No.
Q. Almond extract?
A. We do.
Q. Now, where was it that you said that you observed some people drinking coca cola, where was that you were running a store?
A. Bridgeport, Ala.
Q. Did you testify to more than one case where you observed certain symptoms as the result of the use of coca cola?
A. I did.
Q. How many?
A. I couldn't tell you sir, certainly.
Q. Can you give us any particular case?
A. Yes, sir.
Q. One case that impressed you?

A. Yes, sir.
Q. Who was that a man or a woman?
A. A woman—a young lady.
Q. Do you know how much she took, I believe you said three or four bottles a day?
A. Not bottles, but I have observed her taking it from glasses.
Q. From the glass at the fountain?
A. Yes, sir.
Q. How much more than that she drank you don't know?
A. No, sir.
Q. Do you know whether she drank anything else?
A. I do not.
Q. Tea or coffee?
A. No, sir.
Q. Or whether she took morphine?
A. Couldn't say.
Q. I say do you know whether she took morphine?
A. Well, I am sure she didn't.
Q. Do you know?
A. I couldn't swear it.
Q. Do you know whether she took cocaine?
A. I couldn't swear it.
Q. Over how long a period of time did you observe her conduct with respect to drinking coca cola?
A. A school year.
Q. A year?
A. During the school year.
Q. Now, did you notice any other very marked cases?
A. Well none so very marked.
Q. And that is the only one that so particularly impresed you?
A. Yes sir, the others were among boys.
Q. Did you sell any other soda drinks at that same store?
A. Yes, sir.
Q. And what?
A. I couldn't enumerate them—I wasn't in the store all the time.
Q. Did you sell chocolate soda?
A. I expect we did.
Q. Coffee extract?
A. I don't think so; not that I remember.
Q. Are you sure about that?
A. I am very sure because if they had I would have made it for them.
Q. You didn't make it and therefore for that reason

you don't think you sold it?

A. No, I don't think they did.

Q. One other question, doctor: I just want to get you to state where it was you bought your coca cola syrup at the time you run that store at Bridgeport?

A. I am under impression that we bought it from Trigg Dobbs & Co., here in Chattanooga.

Q. Did you get it at any other place than Trigg Dobbs & Company?

A. I couldn't state; I didn't do the buying for the store.

Q. You don't know how that is?

A. No sir.

Q. What was the style of that firm?

A. The Botannic Drug Company.

(Witness excused.)

Mr. Miller: We have asked Mr. Dobbs under a subpoena duces tecum to bring his books or a memorandum from his books showing the quantity of coca cola syrup that was purchased from the Coca Cola Company for six months immediately prior to the seizure, and if counsel will accept that statement without his coming on the stand I will have a copy of it passed to them this afternoon. If they prefer him personally to go on the stand I will have him go upon the stand.

Mr. Sizer: If it is just the statement you want we do not care about Mr. Dobbs.

Mr. Miller: That is all.

Mr. Sizer: Then that will be all right.

Mr. Sizer: We will ask to file that statement as exhibit "A" to his testimony.

The Court: It might be done without there is some objection.

Mr. Sizer: If there is any error about it we reserve the right to call Mr. Dobbs back and ask him about it.

The Court: All right.

(Witness excused.)

WORTH HALE,

recalled for further examination, testified:

BY MR. MILLER:

Q. Doctor, I will ask you whether or not a drug such as caffeine may be recognized by its physiological action on the organs or functions of the body by administration of such as was resorted to by you in the case of animal experimentation?

A. It may.

Q. In the administration of the drug or ingredient that you did administer as you testified to yesterday, I will ask

you whether or not you recognized a pronounced physiological action that is present when caffeine is administered?

A. I did not in the particular experiment referred to, but I did in others carried out at the same time.

Q. From the results obtained, tell whether or not the effects which are shown on the tracings that were offered in evidence on yesterday were due to caffeine that was present?

Mr. Sizer: I understood him to say he could not say whether symptoms were the results of the caffeine or not.

The Court: He is now asking if he can state ——

Mr. Sizer: He asked him that question awhile ago, and he said he could not from his experiment, but from other experiments performed at the same time.

The Witness: That occurred out of the same solution Mr. Sizer.

BY MR. MILLER:

Q. Now do you say you did or did not recognize the effect produced as that due to caffeine?

A. Yes sir, I did.

Mr. Miller: Now I offer these tracings in view of his testimony and both that of Dr. Salant and Dr. Matthews as to animal experimentation and the physiological action of drugs identifying the drugs, I now offer these tracings in evidence as exhibits to this witness testimony.

Mr. Sizer: Now, your Honor recollects that this witness stated in the first place that ——

The Court: (Interrupting.) I recollect it; I exclude it. I think it is shown here that caffeine is demethylated in large part or entirely in the body, and that to try to setlle any question in this case by experiment as the direct effect of combination citric acid and caffeine when brought into direct opposition with the muscles is so remote and so apt to be misleading that it should be excluded, and is so little analogous to the direct action of caffeine as a food substance taken into the body or mouth; it is getting too far into the field in my judgment.

Mr. Miller: I note an exception.

BY MR. MILLER:

Q. Now, if I understood your answer ——

Mr. Miller: But first, as I understood your Honor this morning I could not read from this text book in support of the statement of the witness made yesterday?

The Court: Yes.

Mr. Miller: As respecting the discharge in the urine?

The Court: Yes.

Mr. Miller: I note an exception to that. We have one other witness of some length which I really think time would be saved by a conference with, and I have not had an opportunity to have as full a conference with as I desire, and it is now six minutes to adjourning time—

Mr. Sizer: Oh no, it is over an hour.

Mr. Miller: Then I will go ahead.

(Witness excused.)

W. F. BOOS, recalled for further examination, testified as follows:

The Court: This is the last witness?

Mr. Miller: Yes, with the exception of Dr. Kebler to file a list.

BY MR. MILLER:

Q. Doctor Boos, assuming that caffeine be administered by mouth, and be afterwards found present in the urine of the person who took it by way of mouth, I will get you to state what would be the course of the caffeine after entering the mouth before being excreted?

A. The caffeine after being administered by the mouth might be in part and is in part absorbed from the stomach and in part from the intestines into the blood. And when it is or has been observed into the blood it will circulate throughout the body and reach all the tissues reached by the circulation, including, of course, the brain, the organs of digestion, the muscles, skin and in fact every organ of the body.

Q. Now, state whether or not the effects that have been described by Prof. Matthews on the heart and other organs be described, would effect health and if so how, the human health in the case of administration of caffeine?

A. Well, I do not remember exactly Dr. Matthews' statement.

Q. As to the effect on the musles, the heart, the brain, and the spinal cord, did you hear his statement?

A. Yes, I remember now.

Q. Accepting this statement as being correct state whether or not the administration of caffeine would have any effect on the health of a person and if so what that effect would be.

A. It would have a deleterious effect or a harmful effect upon the health of a person.

Q. Did you hear the testimony of Doctor Formad respecting chromotoloysis?

A. Yes, sir.

Q. Now, assuming that the condition of chromotoloysis

resulted from the administration of caffeine, state whether or not that would have any appreciable effect on health, and if so what and how?

A. This chromotoloysis will represent a change of a cell from normal condition, and any change of the cell from a normal condition of this character would necessarily carry with its impairment of the function of that cell, whatever that function may be.

Q. And what do you mean by impairment of function? How does that effect the health of an individual?

A. Why impairment of the function of any of the cells in the body is of course necessarily followed by impairment of the health of that individual.

RE-CROSS EXAMINATION, BY MR. SIZER:

Q. Doctor, will chloroform administered to an animal to cause death, in producing death, cause chromotolysis, or may it do it?

A. I could not tell you Mr. Sizer whether it may or not.

Q. How large a dose of caffeine would be required to produce chromotoloysis administered through the mouth?

A. That I can't tell you either.

Q. In the course of caffeine, as it passes through the body does it or not in part pass through the liver?

A. Undoubtedly, yes.

Q. What proportion of it?

A. I should say that the greater portion of it would pass through the liver.

Q. It is demethylated in the liver?

A. I don't know.

Q. Do you know how much of the caffeine would pass through the thoracic cavity?

A. No sir, I cannot tell you.

Q. Is caffeine ever found as such in the urine of a normal human being, using tea and coffee for instance?

A. I cannot tell you; I don't know.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. In this passing through the liver of the caffeine, state whether or not the process you describe — if there is any normal function by the liver or any change in order to discharge it.

A. The very fact that in the body caffeine is demethylated, shows that the body is trying to reduce it to a simpler substance which would be more easily eliminated and less troublesome to the body, but this effort of the body to

demythlate the caffeine is of course an added effort to the ordinary work which has to be performed by the organisms during the day.

Q. What is the result of this added effort as respects health, that is how does it affect the normal health of a person?

A. It is an added tax upon the organism, and if such taxes are unnecessary, it is not of beneficial effect. It has a harmful effect.

Q. What do you mean by the demythization of the substance caffeine?

A. Caffeine is a trimethylxanthine.

Q. By trimethylxanthine, you mean composed of three ——

A. (Interrupting.) It is a substance called xanthine, three hydrogens of which are replaced by the methyl group in the course of the chemical changes which occur in the organisms, these methyl groups — those are chemical groups very hard to explain in detail — these groups are to a certain extent removed from the molecules, the substance, and in that way the substance is changed into substances such as theobromine, theophyllin, and paraxanthine, and this demethylization or removal of the methyl group, first caffeine, with three of the methyl group, then reduced to two of the methyl group, and then in some forms, to only one of the methyl group, monomethylxanthine. There are two of those found.

Q. Did I or not understand you to say that you were not prepared to give an opinion as to whether chromotolysi results from the administration of chloroform or not?

A. I could not tell you.

Q. You did not give an opinion on that point?

A. I did not.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Demethylization of caffeine is simply breaking it up into simpler substances?

A. Yes, sir.

Q. All food and every substance taken into the body undergoes that sort of conversion and breaking-up into simpler substances?

A. Yes, sir; but the result is the building-up of the body.

Q. And the production of energy by the process of oxydization?

A. In which instances do you mean?

Q. In any instances does not a substance oxydize in the body, or when the substance is oxydized in the body,

does not that process of oxydization produce energy?

A. Yes, it does, in the case of oxydization, but may I explain that?

The Court: Yes, sir.

The Witness: In the case of demethylization of caffeine, we do not know whether that is oxydization or not.

BY MR. SIZER:

A. You do not know that?

A. No, sir.

Q. Caffeine is a substance easily soluble, is it not?

A. No, sir; it is not easily soluble.

Q. What about the solubility of caffeine, as compared with xanthine, for instance.

A. I think that xanthine is more soluble than caffeine.

Q. Are you sure about that or not?

A. Yes, sir; I am sure.

Q. You are sure that xanthine is more soluble than caffeine?

A. Oh, yes, I know it is.

(The witness was excused.)

L. F. KEBLER,

recalled to the stand for further examination, testified as follows:

DIRECT EXAMINATION.

Mr. Miller: If your Honor please, this witness on his cross-examination was asked if he knew the names of certain authorities who thought that caffeine was a poison — for the writers who speak of it as a poison. He was not prepared at that time to furnish the names of all them. I asked leave to have an opportunity for him to make research and present them. He has a list of them and I move to have them filed because he could not produce them at that time, and I see no reason why he could not produce them at this time.

Mr. Sizer: We have no objection to Dr. Kebler filing that list. Of course, we have not seen the authorities and we want the right to recall him for re-cross examination after we have seen the list.

The Court: It may be filed and marked as an exhibit.

The Witness: I have written a line across the bottom of this one that is not on the others, and I cannot file this one.

Mr. Sizer: And there is a line at the bottom of the list which is not strictly a recital of the authorities.

(By consent, this line is stricken out and does not appear in the exhibit as copied herein.)

The exhibit was as follows:

MARCH 21, 1911.

AUTHORS USING THE TERMS "HABIT-FORMING", "ADDICTIONS", "INEBRIETY", and "HABITUES", IN CONNECTION WITH CAFFEIN BEARING PRODUCTS.

BULLARD, W. N., M. D.,
Boston Medical and Surgical Journal, 1886, page 314, Art. "Chronic Tea Poisoning."

CARRINGTON, HEREWARD, Member Am. Inst. for Scientific Research, etc.,
in his work "Vitality, Fasting and Nutrition", page 137.

CROTHERS, T. D., M. D.,
Morphinism and Narcomania From Other Drugs, 1902, pages 303-311. Also, (same author) Diseases of Inebriety, 1893, pages 369-376.

LESZYNSKY, WM. M., M. D.,
Medical Record, Vol. 59, page 41, 1901.

RICHARDSON, RUBERT, M. D.,
The Dietetic and Hygienic Gazette, 6 Vol. 22, page 385, et seq.

WESSELHOEFT, WALTER, M. D.,
Boston Medical and Surgical Journal, Vol. 160, 1909, page 608.

WOOD, JAMES, M. D.,
Medical News, Vol. 65, 1894, page 486, Art. "Tea Intoxication".

L. F. KEBLER.

Writers not exclusively dealing with toxicology, but who designate caffeine as a poison, are as follows:

WOOD, B. C.,
Therapeutics, Its Principles and Practice (1909), page 217.

STEVENS, A. A., DR.,
Modern Materia Medica and Therapeutics, page 55.

SCHMIEDERBERG, O., DR.,
Page 96 of his "Pharmaklogie" calls caffeine "a nerve and muscle poison."

BUTLER, DR. GEORGE F.,
A text-book of Materia Medica, Pharmacology and Therapeutics, page 268, treats of poisoning by caffeine.

MEYER U. GOTTLIEB,
Experimentelle Pharmakologie, 1910, page 25, "Caffeine is an almost purely stimulant poison."

DIXON, WALTER E., M. D.,
Manual of Pharmacology, 1906, page 110-11 classes caffeine with convulsive poisons.

RUSBY, DR. H. H.,
Druggists' Circular, Vol. 52, 1908, treats of the poisonousness of caffein."
BINZ, C.,
Archiv. f. Experimentelle Pathologie u. Pharmacologie, page 197, treats of the toxicology of caffeine.
WEIGL, DR. J., (Munchen)
in a pamphlet entitled "The Danger of Caffeine", page 8. Same writer in pamphlet entitled "Coffee Drinking and Health", page 3.
GUNTHER, DR. LEO., (1907)
in a pamphlet entitled "Coffee as a Domestic Beverage" (Der Kaffee als Hausgetrank), page 15, "Coffee a Poison for Children". On page 8 appears a cut of a test-tube bearing the name "Coffein" (Caffeine) and the word "Gift" (poison) together with a skull and cross-bones.
KIRKE'S HANDBOOK OF PHYSIOLOGY,
W. D. HALLIBURTON, M. D., 1905, on page 469, enumerates a number of alkaloids, among them being caffeine, and designates them all as poisonous.
LEMAIRE, M. P., M. D.,
Jour. de Med. de Bordeaux, 1909, page 295 et seq., vol. 59, reports about 30 cases of poisoning by caffeine.
GERATY, T., L.K.Q.C.P.I., etc.,
The Lancet, 1899, Vol. I., page 219, reports a case of caffeine poisoning.
ROUTH, C. B. F., M. D.,
Proceedings of the Medical Society of London, 1884, page 405, reports a case of caffeine poisoning.

L. F. KEBLER.

DR. W. F. BOOS,

recalled as a witness herein, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor Boos, what portion of humanity, or if you are prepared to express an opinion, is afflicted with heart disease?

A. It is difficult to say the proportion but a great many people have it, and a great many people have it who do not realize that they have it.

Q. How are you able to say that?

A. I have it and I would be made to realize it very quickly if I would take a drug that would act on the heart.

Q. State whether or not you have performed or wit-

ed autopsies, and if so, approximately on what number
ersons.
. I have seen perhaps 800 or more autopsies.
. On human beings?
. On human beings.
. Did those persons die of heart disease?
. Some of them died, but I have seen a great many
psies of people who have died of entirely different
bles where there was no history given by them before
h of having had heart disease but where the autopsy
ved undoubtedly that they had heart lesions and must
e had troubles from that cause.
. Now, in the case of persons who were afflicted with
t disease, what if any effect would the administration
affeine have in doses of one and a quarter grains taken
onnection with this Coca-Cola syrup formula which
tor Fuller has filed — what effect might it have?
. In cases of heart disease which are not recognized
uch during life, the heart is compensated and is doing
. If you give drugs that act upon the heart you are
apt to produce trouble of some sort, especially with
eine which tends to contract the heart but does not
l to assist the diastole, the proper filling of the heart
r contraction.
. Explain what you mean by those terms of distension
contraction which you employed.
. The effect of caffeine on the heart is to increase its
lency to contract, and the individual contractions may
nore powerful. They are as a rule more frequent, and
time between the contractions being lessened, the heart
not have an opportunity to fill itself before it con-
ts again; and in cases of heart disease the opportuni-
given to the heart to fill itself is a very important
g.
. In the case of a consumer of caffeine, taken in the
ge given in this exhibit of Doctor Fuller's, one or more
ces of the syrup — what might be the probable effect
he human health of the individual affected with heart
ase?
. It would tend to be deleterious.

CROSS-EXAMINATION,

BY MR. SIZER:

. The fact is, anything of an exciting or stimulating
re is bad for a man with heart disease?
. That is not quite true, because — yes, of course that
rue.

Mr. Sizer: That is all.

(Witness excused.)

R. T. WRIGHT,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY GENERAL COX:

Q. Where do you live?

A. Chattanooga, on Missionary Ridge, near the city.

Q. What is your profession?

A. I am an attorney-at-law.

Q. How long have you lived in Chattanooga?

A. Twenty-two years.

Q. Are you acquainted with the drink called Coca-Cola?

A. Yes, sir.

Q. Where is it sold?

A. Most everywhere in the city and out in the suburbs in bottles, and in the fountains in the city and at all the drug stores.

Q. Did you ever drink it?

A. Yes, sir.

Q. To what extent?

A. To excess.

Q. What do you mean by excess? For instance, how many glasses or bottles a day?

A. Well, I used to take about two drinks a day but I have went to four or five.

Q. You have gone to four or five?

A. I have not for the last four or five days.

Q. You quit—what made you quit?

A. Well, I heard some—

Mr. Sizer: I don't think that has any bearing on the case.

The Court: He says he heard and that is hearsay.

BY GEN. COX:

Q. Did it have any effect upon you—did you observe any effect on you or on your system by the use of Coca-Cola?

A. I would not have drank it if I had not.

Q. What effect did it have?

A. I was satisfied it was a stimulating drink; at least I thought so. It stimulated me.

Q. Tell the effects upon your nerves or brain, or your heart or whatever part of your body it did affect.

A. That is very hard for me to explain to any one. I feel that it stimulated me. If I was worried I felt that a

drink of it relieved that worry for a while, and if I was mentally depressed, I thought taking a drink of it revived me.

Q. State whether or not it is a fact that it caused restlessness or sleeplessness, or nervousness.

A. I think it caused sleeplessness, and I am satisfied more or less nervousness.

Q. State whether or not you observed the effects on children of the use of Coca-Cola, and if so, to what extent.

A. Yes, sir. I think it has a more injurious effect on a child than to me. I have noticed it in my own children.

Q. What did you notice in your own children?

A. Kept him awake.

Q. When you observed that fact did you not stop him from drinking it?

A. I did.

CROSS-EXAMINATION, BY MR. SIZER:

Q. Do you drink coffee?

A. Yes, sir.

Q. How much?

A. I drink on an average two cups a day.

Q. Any tea?

A. No, sir. In the summer when I quit coffee I take a couple of cups of tea a day.

Q. Do you smoke?

A. Yes, sir.

Q. About how many cigars a day?

A. I think about three or four cigars a day.

Q. Three or four cigars a day and two cups of coffee and from two to five glasses of Coca-Cola—

A. I have taken from two to five.

Q. That is a good deal of stimulation in old life?

A. There is no doubt about it.

Q. Now, you speak of observing the sleeplessness from the use of Coca-Cola. That is only when you take a bottle at night?

A. I have noticed that those days that I took more Coca-Cola I was restless at night. I got in the habit that I can sleep tolerably well if I didn't go over my two glasses, but if I drank three or four I could not sleep.

Q. If you drank three or four glasses of Coca-Cola and smoked three or four cigars and took two or three cups of coffee, you didn't sleep well?

A. Certainly not.

Q. What was the age of the child?

A. I notice my little boy when he was eleven years of age and he seemed very restless. He was about ten or eleven when I discovered it.

Q. How much did he take?
A. Of course I only had his word and I don't know.
Q. You told him to stop it?
A. Yes, sir.
Q. He did stop?
A. I had to reprimand him for it.
Q. But he stopped it?
Q. He says he has and I think so.
Q. Did you give him coffee?
A. No, sir.
Q. Tea?
A. He does take tea sometimes, but very seldom, a cup in the summer time. We do not use tea in the winter at our house. It is our summer drink.
Q. You are of a highly nervous disposition, anyway?
A. Yes, sir; I am of a very nervous temperament.
Q. You live in the summer time up on the mountains?
A. I live for about three months of the year on Lookout Mountain.
Q. And you have been in the habit when going up there of going without Coca-Cola entirely?
A. Yes, sir.
Q. Still continuing your tea or coffee?
A. No, sir; I am mainly a buttermilk man on the mountain. I go up there for my health and I take those things that are healthful.

REDIRECT EXAMINATION, BY GEN. COX:

Q. Does your health improve when you quit drinking Coca-Cola, on the mountain?
A. My health improves during the summer time.

RECROSS-EXAMINATION, BY MR. SIZER:

Q. You live out in the open air and plow?
A. No, sir; I don't plow but I take a grubbing hoe and grub up the roots for exercise.
Q. And you think that contributes to improving your health?
A. Yes, sir; hardens my muscles and makes me healthy.
Q. How old are you?
A. Fifty-two.
(Witness excused.)

W. J. DOBBS,

recalled as a witness on behalf of the Government, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER:

Q. Have you a statement of the amount of Coca-Cola

purchased by your firm of Trigg, Dobbs & Company from The Coca-Cola Company of Atlanta and shipped for distribution in Chattanooga, or in the territory adjacent, during the six months immediately preceding this seizure, namely, October, 1909, and if so, tell what it is, in gallons.

A. 7,276 gallons.

Q. Did you out of that supply the bottling trade of Chattanooga?

A. No, sir; we only furnished the soda fountains and the different stands in the city.

CROSS EXAMINATION, BY MR. SIZER:

Q. That you sold throughout the territory reached by

A. Yes, sir.

Q. That is a radius of how many miles?

A. Most of this goes into the city but we have some trade outside the city; 75 or 100 miles is the fartherest we reach out, but we only have two or three customers that far.

Q. Do you know how much coffee you sold in that same length of time?

A. No, sir.

Q. Could you get us up a statement of it?

A. I could.

Q. I wish you would send us up a fair statement of the amount of coffee and tea you sold in that time.

A. All right.

Mr. Miller: I submit that is incompetent and I will object to it when it comes.

The Court: You do not require the witness to come back, Mr. Sizer?

Mr. Sizer: No, sir.

The Court: I will rule on it when it comes.

BY MR. SIZER:

Q. You are still distributing Coca-Cola?

A. We are.

Q. You are the sole distributor of Coca-Cola here?

A. We are not.

Q. You do not sell to the bottlers, but are you not the sole distributors of fountain syrup?

A. No, sir. Fritts & Wiehl have some trade in the city.

Q. In October, 1909?

A. I am not sure about that, but I do not think they commenced until 1910.

Q. At that time you were the sole distributor?

A. Yes, sir.

Q. So far as coffee and tea are concerned every other

wholesale grocer sells it?

A. Yes, sir; it goes all over.

Mr. Miller: The Government rests.

Mr. Sizer: Now, may it please your Honor, we desire to make a motion for a peremptory instruction in favor of the defendant. I do not care to argue the motion at this time. If your Honor has any doubt about it as to whether it is well taken, you can overrule the motion and we will put it in our evidence and then will renew the motion.

The Court: Does either side care to argue the motion?

Mr. Miller: Unless they do, we do not.

The Court: Well, I will overrule the motion, if neither side cares to argue it.

Mr. Sizer: If your Honor please, we understood that the Government would take all of to-day and part of to-morrow to complete their testimony and we are not prepared to go into our evidence, at least we would be much better prepared if your Honor would adjourn until to-morrow morning.

The Court: Before we adjourn I would like to see counsel and the jury in my room.

(Thereupon Court adjourned and the counsel and the jury proceeded to the Court Chambers.)

Adjourned until Wednesday, March 22, 1911, at 9 o'clock A. M.

Chattanooga, Tennessee,
Wednesday, March 22, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances, same as heretofore.

Thereupon, the claimant and intervenor, the Coca-Cola Company, introduced the following evidence:

JOHN S. CANDLER,

the first witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. SIZER:

Q. Mr. Candler, where do you reside and what is your profession?

A. Atlanta, Georgia; lawyer.

Q. With what firm are you connected now?

A. Candler, Thompson & Hirsch.

Q. How long have you practiced law?

A. Since March, 1882.

Q. Have you ever occupied any judicial position in the State of Georgia?

A. I was Solicitor-General of my judicial circuit for something over nine years, Judge of the Circuit Court in my State, Associate Justice of the Supreme Court of my State.

Q. Were you ever at any time connected with the Coca-Cola Company in any capacity, and if so, what?

A. I organized the corporation known as the Coca-Cola Company, that is to say, my law firm applied for the charter for that corporation, and it was organized under my advice as its counsel.

Q. When was the Coca-Cola Company organized?

A. The Company was organized, as I recall, in 1891, possibly the date of the charter is January, 1892.

Mr. Miller: We object to that; the charter shows for itself.

The Witness: Well, the company was organized in 1891 and the charter granted about 1892.

Mr. Miller: We object to that. I do not see that it is material, but if it becomes material, I want to object to it, because insofar as the date of the organization of the Company is concerned, we submit that the charter is the best evidence.

The Court: I cannot see that it is prejudicial to the Government, and I overrule the objection.

BY MR. SIZER:

Q. How long has the Coca-Cola Company, the corporation, been engaged in business, since the date of its organization?

A. Since the date of its organization.

Q. And in what business has it been engaged?

A. In the manufacture and sale of a soda fountain syrup known as Coca-Cola.

Q. In what way were you connected with this corporation from its organization, and up to what date did you continue to be connected with it?

A. I was the Vice-President of the Company, and a member of its Board of Directors from the date of its organization up to the middle of January, 1907.

Q. Who succeeded you at that time, in January, 1907?

A. Howard Candler succeeded me as Vice-President and on the Board of Directors.

Q. Who has been the President of the Coca-Cola Company since its organization?

A. Asa G. Candler.

Q. What relation is he to you, Judge?

A. My brother.

Q. Is he still the President of the Company.

A. He is the President of the Company at this time.

Q. Now Judge, will you state, if you know, who devised or invented the formula for this Coca-Cola syrup.

A. Personally I could not say of my own knowledge.

Q. Do you know from whom your brother, Asa G. Candler, or from whom the Coca-Cola Company acquired it?

A. The Coca-Cola Company acquired it from Asa G. Candler.

Q. And from whom did Asa G. Candler obtain it?

A. My recollection is from Joseph Jacobs, Woolfolk Walker, and possibly J. S. Pemberton, George S. Lounds. I think those were the principal ones.

Q. In that connection, state whether or not the transfer of the right of this formula was in writing.

A. All of them were.

Q. Where are the originals and where were they filed?

A. I could not say — without some — I could not say now. If you have any papers there that would refresh my memory, I might be able to tell you, but I could not without them.

Q. What was the name of that syrup as originally invented — what was the first name of it, if you remember?

A. I could not actually tell you. My connection has been entirely with the corporation. So far as I know, I know nothing about the Coca-Cola syrup.

Q. I hand you certified copies of a number of papers, filed in the Patent Office, and I ask you to look over them and state what they are, and refreshing your memory from these papers, just state the course by which the title of this syrup was acquired by the Coca-Cola Company, or the formula, rather, I should say.

A. Yes, I recall these papers now, since you have shown them to me.

Q. All right. Now, just state first who was the original inventor and what was the original name, and then how the title was transferred.

A. Doctor John S. Pemberton was the first man who ever had anything to do with this preparation.

Q. What did he call it?

A. Coca-Cola Syrup and Extract. That is, he had a label registered Coca-Cola Syrup and Extract.

Q. He transferred it to various persons, and then the title passed, as shown by these papers, to the Coca-Cola Company?

A. To the Coca-Cola Company.

Q. After the Coca-Cola Company acquired it, what change in the name was made—in the Coca-Cola Syrup and Extract—what did the Coca-Cola Company call it?

A. Simply Coca-Cola.

Q. Was that name registered in the Patent Office?

A. It was.

Mr. Miller: That is a matter of record. So far as the general title, we do not object to it if it is introduced for that purpose, but if it is introduced to justify the use of an adulterated mixture, the fact that a patent would be issued does not justify such use.

The Court: The trade-mark has already been proven so that it is unnecessary to prove it again.

Mr. Sizer: I was not undertaking to prove it.

BY MR. SIZER:

Q. You saw the trade-mark certificate, copy of which was introduced in evidence?

A. I did.

Q. Did you personally supervise the proceeding under which that trade-mark was obtained?

A. Yes, sir.

Q. Was there an interference proceeding in the Patent Office with respect of the right of the Coca-Cola Company to that name?

Mr. Miller: I object to that, I think that is thoroughly incompetent.

The Court: I sustain the exception.

Mr. Sizer: I am not undertaking to prove what occurred, or the certified copy. I simply want to show by Judge Candler that he conducted the proceeding—

The Court: (Interrupting.) I cannot see the relevancy of that.

Mr. Sizer: It is relevant for this purpose, in we say we have a distinctive name, and the fact that there was a proceeding in the Patent Office by which it was adjudged that the Coca-Cola Company was entitled to the exclusive use of this name, is, I submit, evidence bearing on the question of our right to that name, and the distinctive feature of it.

The Court: But the Government was not a party to that—

Mr. Sizer: That is true—

The Court: And I sustain the objection.

Mr. Sizer: Before you do that, I want to call your attention to an authority I have that is exactly in point.

The Court: I will hear it.

Mr. Sizer: We offer this simply to prove the fact that there was an interference proceeding in the Patent Office in which it was adjudged that the Coca-Cola Company was entitled to this name. Of course, that does not preclude as res adjudicata any one except those who were parties

to that proceeding, but it does have a bearing on the question of whether or not we were entitled to it.

Mr. Miller: We don't question that you were entitled to the name.

Mr. Sizer: Entitled to the exclusive use of the name and we offer the judgment for that purpose on this theory: (Reading)

> "Although a judgment is not admissible against strangers to prove the facts on which it is based, it is always admissible to prove the fact or time of its own rendition and its necessary legal consequences, so far as they affect the rights of others than the immediate parties. For this purpose it is not necessary to put in evidence the entire record; a transcript of so much of the record as will show the existence of the judgment and the time of its rendition will be sufficient.
>
> "It is generally held that, where no fraud or collusion has been shown in the recovery of a judgment, it is conclusive of the fact and the amount of the indebtedness of the judgment debtor, and cannot be collaterally impeached by third persons in a subsequent suit where such indebtedness is called in question. In an action by a judgment creditor against his debtor and the latter's grantee of land, to set aside the conveyance as fraudulent, the judgment is conclusive evidence against the grantor that he owed the amount of the debt when the suit was brought, and it is at least prima facie evidence of the same fact against the grantee"—etc.
>
> "Even against strangers, a judgment is admissible in evidence in evidence as prima facie, although not conclusive, proof of any fact which from its nature is provable by evidence of general reputation, such as the death of a person at or before a given time, or a question of pedigree, or color, or of freedom or slavery, or a right of ferry, or of free warren."

Here is a question that is a matter of general reputation as to our right to the use of this name and the exclusive use of it.

Now, we submit that this judgment is admissible, not as conclusive against the Government but as evidence of the fact that our right to this name has been established by courts of competent jurisdictions in proceedings between other parties.

The Court: I do not think it is admissible, really, but I do not think it is prejudicial to the Government if admitted and in order that the question may not be in the case I will allow it to go in.

Mr. Miller: We wish to go on record as objecting.

The Court: You may reserve your exception.

Mr. Miller: We don't want to consent to anything like this; we just want to say that whether there was an interference is not admissible at all.

The Court: I do not think it is, but it won't hurt anything to let it in.

Mr. Sizer: Right at this point I want to offer in evidence the certified copies of the transfers, commencing with the transfer of J. S. Pemberton to Willis Venable and George S. Lowndes, and then through various intermediate transfers down to the transfer to The Coca-Cola Company by Asa G. Candler. They are all in this same batch.

Then I want to offer in evidence certified copies from the Patent Office of the interference proceedings between a man named Kent and The Coca-Cola Company as to the right to the use of the name "Coca-Cola."

Mr. Miller: Do you say that shows there was an interference?

Mr. Sizer: Yes.

Mr. Miller: I thought you said there was not.

The Witness: Two, Mr. Sizer.

Mr. Sizer: This only relates to one of them. It seems that there was no proceedings in the Patent Office with respect to the others so far as I could find. This adjudges that as between Kent and The Coca-Cola Company that the testimony shows beyond any reasonable doubt that The Coca-Cola Company had adopted and used the name "Coca-Cola" as a trade-mark—

Mr. Miller: I object to that. That will show what it is.

Mr. Sizer: Then I will read. (Reading)

> "But while The Coca-Cola Company cannot avail themselves of a date earlier than June 28, 1887, the the testimony shows beyond any reasonable doubt that on said date the privies in title of the said company had adopted and used the symbol "Coca-Cola" as a trade-mark. It follows, therefore, that judgment as to prior adoption and use must be and the same is hereby rendered in favor of The Coca-Cola Company."

The Court: If the Government objects to that I don't think I will allow it. I did not think it was competent, but I did not think it was prejudicial, but if the Government insists I will sustain the objection.

Mr. Miller: Our objection does not go to the proof that there was an application granted.

The Court: I sustain the objection.

Mr. Sizer: In that same connection we desire to offer certified copies of judgments in various other cases, the

case of the The Coca-Cola Company and the Coca-Cola Bottling Company, Complainants, vs. E. B. Donald and H. G. Baily, in the United State District Court of South Carolina, Fourth Circuit.

Certified copy of a judgment in the Circuit Court of the United States for the Eastern District of Louisiana in the case of Coca-Cola Company vs. A. L. Pilsbury, Jr.

Certified copy of a judgment in the same court in the same case of The Coca-Cola Company against American Bottling Works.

Certified copy of a judgment in the Circuit Court of the United States for the Western District of Pennsylvania in the case of The Coca-Cola Company and Coca-Cola Bottling Works vs. E. S. Frishkorn.

Certified copy of a judgment in the Circuit Court of the United States for the Northern District of Illinois in the case of Coca-Cola Company vs. Max Jacobs and Henry Racusin and Ike Michalson, trading as the Western Bottling Works.

All of these judgments adjudged that The Coca-Cola Company is entitled as against the various defendants in the cases named to the exclusive right to the use of the name "Coca-Cola."

We offer these judgments for the purpose of establishing the right—the general right of The Coca-Cola Company to the use of this name and showing the extent to which its right has been recognized by the courts.

The Court: I shall rule this: To the extent that those judgments show that there was a contest between The Coca-Cola Company and other persons to the right to the use of this name, these judgments may be admitted, but to the extent of any recitals in the judgments as to the date when the Coca-Cola people began the use of this name or any recital of facts of that sort as distinct from the right to use the name as between the two litigents—as to that they are excluded.

The first one you offered had a good many recitals of the date when they began the use, etc., and I think those are not competent but the judgments may be admitted in evidence as showing the contest between the Coca-Cola Company and those other persons.

Mr. Sizer: Then we offer them for that purpose.

Mr. Miller: Note an exception.

Mr. Sizer: The first judgment I refer to is the case of Donald and Bailey. That was decided the 4th day of June, 1906. It confirms a report of a Master.

The Court: Just state the final result.

Mr. Sizer: The final result was the Master found and

reported to the Court that The Coca-Cola Company was entitled to the use of the symbol "Coca-Cola" as a trade-mark, and that the use by the defendants was spurious and that The Coca-Cola Company was entitled to a judgment against the defendants for the sum of $125.00 and costs.

The second judgment, in the Pilsbury case, adjudges that the preliminary injunction herein issued in favor of the complainants and against the defendant, enjoining the defendant from manufacturing, preparing, selling or supplying others for sale any drink, syrup or extract under the mark, symbol or name of "Ko-Kola" or other device identical with or like Coca-Cola, or from using any other name or device calculated to induce the public to believe that the drink, syrup or extract of the defendant is the same as Coca-Cola, be maintained and perpetuated, and that the demand for damages be dismissed as having been compromised and that the appointment of the Master herein, etc. ——

General Cox: What was the date of that?

Mr. Sizer: The 5th of January, 1907.

In the case against the American Bottling Works, a judgment was rendered on the same day and by the same court and is to the same effect.

In the case of E. S. Frishkorn in the Western District of Pennsylvania, a judgment was rendered on the 13th day of February, 1907, and it adjudges that the complainant, The Coca-Cola Company, is the owner and proprietor of a good and valuable trade-mark for beverages consisting of the term or designation "Coca-Cola," and that The Coca-Cola Bottling Works of Pittsburg, complainant herein, is the licensee for the said The Coca-Cola Company for the territory surrounding and including the City of Pittsburg, Pennsylvania, having an established business in operation for dispensing the beverage; that the appearance of their product when put upon the market is characteristic and as such recognized by the trade as the product of these complainants, and that the defendant is dealing in a bottled drink under the name of "Toca-Cola" and is infringing upon the trade-mark rights of the complainant—

The Court: The only thing in that competent is that the trade-mark was recognized. That is competent, but everything else is excluded on the evidential matters.

Mr. Sizer: I did not intend to read the evidential matters.

In the case in the Northern District of Illinois which was decided October 19, 1908,—that was a case against Jacobson Brothers and others trading as the Western Bottling Company. The Court adjudged that The Coca-Cola Com-

pany, complainant, was the sole and exclusive owner of a secret process for the manufacture of a certain beverage which, ever since complainant's incorporation and for a long time previously, has been and is termed and known by the name of "Coca-Cola," that said beverage has been generally and exclusively sold throughout the United States, including the State of Illinois, by its said trade name of "Coca-Cola," and that by virtue of its character and its long continued and exclusive use by the complainant and its predecessor in business, the said name "Coca-Cola" has come to signify in the trade that the beverage bearing said name is the product of the complainant—

The Court: That is all.

Mr. Sizer: Then the judgment proceeds—

The Court: I also admit the interference proceedings for the same purpose.

Gentlemen of the Jury, these are not admitted as evidence of any facts there recited as distinguished from the general fact in each case that The Coca-Cola Company had in this particular case asserted its right to the use of the the trademark and that it had been declared to have that right against the litigants. That is all it is admitted for now.

BY MR. SIZER:

Q. Since the organization of The Coca-Cola Company has this product been sold under this same name?

A. Yes, sir.

Q. Has it ever been sold under any other name?

A. No, sir.

Q. Has The Coca-Cola Company ever advertised it or offered it for sale or sold it as "Dope," or "Coke"?

A. Never.

Q. Now, Judge, does this syrup as put on the market contain as one of its ingredients a substance known as "Merchandize No. 5"?

A. It does.

Q. Originally—that is, at the time The Coca-Cola Company commenced to manufacture and sell this syrup—where was that particular substance manufactured?

A. Manufactured at their home plant in Atlanta originally.

Q. Now, later on was any change made by which that particular substance was manufactured by some other person, and if so, what change?

A. Later on a contract or agreement was made by which it was manufactured by the Maywood (N. J.) Chemical Works.

Q. For what reason was that change made in the manu-

facture of that ingredient?

A. That particular company could manufacture Merchandise No. 5 better than we could.

Q. Since the date of that contract has that Merchandise No. 5 been manufactured by the Schaeffer Alkaloid Works?

A. It has.

Q. When was it that The Coca-Cola Company first began to manufacture a syrup for bottling purposes?

A. My best recollection is in 1898.

Q. Prior to that time had they been manufacturing the syrup exclusively for use in soda fountains?

A. Yes, sir.

Q. Now, after it commenced to manufacture for bottling purposes, was it found necessary to make any modification of the ingredients in the mixture, and if so, what modification was made?

A. For several years after the bottling rights were disposed of, I think possibly eight years after, it was sought by the parties owning and controlling the bottling privileges—

Mr. Miller: Do you purport to speak for one of these parties who owns the right, or just what they related to you?

The Witness: Well, from conferences with them, and with my own Board of Directors together, conferences with both of us.

Mr. Miller: I object to your stating what other people have said, who were supposed to own the bottling rights.

The Court: He may state the ultimate fact.

The Witness: I represent all those companies, both the bottling companies and The Coca-Cola Company, and I can really speak for all of them, I am the attorney for all of them.

BY MR. SIZER:

Q. Without going into details of those conferences—I don't care for that—you can state whether as a result of these conferences what modification, if any, was made.

A. Well, the syrup was made slightly heavier for bottling.

Q. What do you mean by "slightly heavier," what particular ingredients?

A. More sugar in it,—sweater.

Q. As a result of that was the proportion of any other ingredient in the mixture as furnished for bottling purposes, changed?

A. No, sir; except the result of that would be that there was less of caffeine.

Q. A less percentage of caffeine?

A. Yes, sir; in the bottling product than in the soda fountain product, slightly,—but less.

Q. Can you state what that change or per cent. was, as to how much more sugar was put in the bottling syrup and how much less caffeine?

A. Not accurately, I could not; I know the general fact.

Q. After that change did the company still continue to manufacture fountain syrup in exactly the same way they always did?

A. Yes, sir; exactly—absolutely no change in the syrup for the fountain.

Q. Do you know what the particular reason was for increasing the amount of sugar in the bottlers' syrup? Why they wanted to do that?

A. There were two reasons for it, as I recall. The first reason was, probably the dominant reason, was that they wanted a heavier and sweeter syrup; and another, all Coca-Cola syrup for bottling—I mean for soda fountain use—is sold to wholesalers and others with the limitation that it is not to be bottled, that it cannot be sold to bottlers.

Q. So that by adopting this modification a slight difference was made between the bottlers' syrup and the fountain syrup?

A. Yes, sir; in that case if unauthorized bottlers got hold of syrup that was manufactured to be sold at the fountains, we could readily detect it and protect the bottler.

Q. You sold the exclusive privilege of bottling the syrup to certain individuals?

A. Yes, sir; who live here in Chattanooga, and agree to protect them in that right. I said "sold," it was an agreement made.

Q. In that respect?

A. Yes, sir; for the exclusive privilege of bottling.

Q. As the name of this trademark appeared on the label and advertising matter, is it or not a facsimile of the trademark and name as it appears on the trade-mark?

A. It is.

Q. Are you familiar with the building in which the manufacture of this syrup was carried on in the year 1909?

A. Yes, sir; I am thoroughly familiar with that building from the time it was built until now.

Q. What is the size of that building, how many floors has it?

A. It has a basement and three floors.

Q. Three floors above the main one?

A. Yes, sir.

Q. How many of these floors were used in the manufacture of the syrup?

A. Two, the basement floor and the ground floor.

Q. What were the other floors used for?

A. The next floor was for the offices of the building, my office, my chambers as Judge, were on that floor.

Q. You kept your Judge's chamber in that building on the floor immediately above the first or ground floor?

A. Yes, sir, and as Vice-President of the Company afterwards—my brother was away a large part of the time, and for his convenience and my accommodation, my offices, they were in that building in 1898, where I kept my library.

Q. Was that building erected by the Coca-Cola Company?

A. Yes, sir.

Q. Was it or not a building up to the standard?

Mr. Miller: I object to that.

The Witness: It was what we call mill construction.

Mr. Miller: I object to that characterization of the building; if he wants to state, let him state how it was built.

BY MR. SIZER:

Q. Perhaps that question was a little leading. State how that building was constructed and what character of construction it was.

A. It is known as a mill construction building; it is built of brick and trimmed with marble, and the floors, they take—you want a description of them?

Q. Yes, just in a general way.

A. Well, take the basement—and the next floor—these are the manufacturing floors. The floor of the ground floor, the floor between the basement, consists of a very heavy flooring laid with—we will say laid this way.

Q. Diagonally?

A. That was a heavy three-inch plank splined—it is not tongued and grooved. The floor was splined.

Q. Well, explain what that is?

A. I am not an architect or a builder; I know what it looks like and I know what it is; I suppose these gentlemen (The Jury) probably know what a splined floor is. In every way it was heavy stuff, and they drove it—it is tongued, I suppose a carpenter would say, and you drive the pieces through between it so as to tighten it and join the two pieces together. Then across that floor there was another floor—that floor runs this way (indicating.)a heavy three inch stuff, thick, and then across that floor there is laid right across it another floor of regular flooring tongued and grooved.

Q. Could any water or other substances get through that floor from the ground floor down to the basement?

A. There could not, it was a water-tight floor.

Q. Now, after the streets surrounding that building, how were they paved, it at all, with what material, if at all?

A. The street on what is known as Coca-Cola Place—now, that would be the west side—the building was built small at one end.

Q. Sort of a flat-iron shape?

A. Yes, sir; it was built at the junction of what is known as Coca-Cola Place and Edgewood avenue, the two, the two streets coming together, the Coca-Cola Building, that is the building we are now talking about in 1909 came to the end—I suppose a part of it would have been possibly a frontage of, we will say, twelve or fifteen feet, then it widened out as it went down Edgewood avenue this way, and Coca-Cola Place, and the streets gradually widened which made it, you might say, a three-cornered building.

Q. What kind of pavement, if any, was on these streets?

A. My recollection is that on Coca-Cola Place, that the street was paved with chert; on Edgewood avenue with wooden blocks.

Q. Now, since the date of the seizure, has the Coca-Cola Company built another—

Mr. Miller: I object to that, if your Honor please, that is not competent.

The Court: The objection is sustained.

BY MR. SIZER:

Q. I want to know if you personally know this Coca-Cola syrup, have you ever drank it or used it?

A. Yes, sir; for some twenty-five years. I drank Coca-Cola in fact before the Coca-Cola Company ever owned it.

Q. How much of it do you generally drink in the course of a day?

A. Oh I have no regular quantity; sometimes I drink it whenever I want it and whenever I feel like I want it, and whenever I want it—sometimes I take a glass a day and I drink as much as half a dozen, have drank as much as much as a half a dozen in a day.

Q. Has it ever produced any appreciable effect on you?

A. Well, I am not a Doctor, I don't know, I do feel good all the time.

Q. Has it ever hurt you?

A. Well, as I say, I don't know. If it has, I don't know it.

Q. Has your health been good during the twenty-five years you have used it?

A. I think since the 16th of January, 1885, I have been in bed twice from grippe each time. With that exception,

I have not been sick since the 16th day of January, 1885.

Q. Do you drink tea and coffee?

A. Yes, sir; I drink a cup of coffee, have all the days of my life, at my breakfast.

Q. Do you drink tea sometimes?

A. Yes, sir; I drink tea in the summer, about two glasses of iced tea every night at my last meal, and in the winter time, I take it hot the same way.

Q. Have you observed the use of Coca-Cola has had any tendency to form a habit with you?

A. No, sir; there are times I am where Coca-Cola is not and I don't get it for a month.

Q. Do you experience any inordinate craving for it or any particular desire for it when you are where you can not get it?

A. No, sir; I have not had but one glass of Coca-Cola since I have been here.

Q. Now, there is one thing I want to ask, about the water closet on the manufacturing floor of this building.

A. There was no water closet on the manufacturing floor of this building.

Q. Was there any on the first floor?

A. Yes, one.

Q. And how was that water closet ventilated?

A. Through the roof, under the city building laws.

Q. You mean that a pipe led from the closet up to the roof of the building?

A. Yes, sir; and out through the roof.

Q. Out through the roof?

A. Yes, sir.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION, BY MR. MILLER:

Q. Judge, you say that Merchandise No. 5 was originally made by the Coca-Cola Company or by its predecessor?

A. Well, my memory is I didn't say anything about its predecessor, that I don't know, it was by the Coca-Cola Company.

Q. You were a Director in that Company?

A. Yes, sir; and I am now, or I was up to 1906.

Q. You are counsel for it?

A. I am counsel for the Company now.

Q. You were at the time of the manufacture of Merchandise No. 5?

A. Yes, sir; partly—and partly not—ten years I was on the Bench I didn't represent the Company as attorney.

Q. You were also a stockholder in it?

A. I am.

Q. I say you were then?
A. Yes, sir.
Q. And have been from the beginning?
A. Yes, sir.
Q. When they manufactured Merchandise No. 5?
A. Yes, sir.
Q. And you were intimately acquainted with the members and Directors and stockholders of the Company that manufactured Merchandise No. 5?
A. No, sir; not with the Company that manufactured Merchandise No. 5 now.
Q. Well, I don't mean now; I say at the time it was manufactured by the Company in which you were interested, and of which you were a director and for which you were counsel?
A. Yes, sir. Now, what was the first part that you asked there?
Q. Whether or not at the time Merchandise No. 5 was manufactured by the Company of which you were a director and for which you were counsel, you were intimately acquainted with the members of the Directorate and the stockholders in that same Company?
A. I was, yes, sir.
Q. Where was your office at that time with regard to the building of the Company, that is, when they manufactured Merchandise No. 5, was that in the same building?
A. From 1898 my office was in that building.
Q. This same company during a portion of that time manufactured Merchandise No. 5?
A. Yes, sir.
Q. Now, then, tell what was in Merchandise No. 5.
A. Mr. Miller, I am not a chemist, I don't know, I just know in a general way. I know there was used to make it alcohol, I know there was used to make it, cola nuts; I know there was used in the manufacture of it, coca leaves.
Q. Did you know the process of the manufacture?
A. I could not say, I don't know as I could tell you that accurately at all, I am nothing but an A. B. graduate in chemistry, only just like they teach it in ordinary colleges.
Q. Tell us if there was any cocaine in it at that time.
A. As far as I know, none.
Q. You say so far as you know?
A. Yes, sir.
Q. Well, that means you don't know anything about it?
A. No, sir.
Q. Does it mean that at all?
A. Well, it means just what I say, that so far as I know, there was none in it, there was no purpose to have any in

there.

Q. I am not speaking about the purpose.

A. Well, all right.

Q. I want to know, you are a distinguished jurist, who has been on the Bench, and I want an answer to this question—are you prepared to say whether there was or was not cocaine in that mixture?

A. I am not prepared to swear whether there was of my own knowledge, not being a chemist.

Q. Well, if you are not prepared to swear that cocaine was not in the mixture at that time, how are you able to say that Merchandise No. 5, which was then used in this composition, was the Merchandise No. 5 that was contained in this mixture at the time it was seized here?

A. I know it in this way—I know what the agreement about it was—I know—

Q. All right; proceed.

A. I know, of course, all the consultation about it—I know how it was manufactured, and I think I can say that with the exception of the fact that the manufacturers now are different manufacturers than the Coca-Cola Company, that there has been no change—there has been on the part of the Coca-Cola Company no purpose to have any change—

Q. (Interrupting.) It is not the purpose I am asking about. It is what the components of Merchandise No. 5 were at the time when you were connected with it, at the time your company made it, and I understood you to say that you did not know whether there was then or was not any cocaine in it.

A. I could not say, I could not swear one way or the other, whether there was or was not a trace of cocaine in the syrup as they manufactured it, of my own knowledge, that is what I mean to say.

Q. Now, if you could not then state whether cocaine was in it or not, assuming that there is no cocaine in the manufacture as disclosed now, you could not say then, of course, if the Merchandise No. 5 then used was identical with what is now used?

A. Not being a chemist, I could not say whether it is or not, of my own personal knowledge, always.

Q. As a matter of fact, in a controversy between Henry A. Rucker, as Collector of Internal Revenue, and the Coca-Cola Company, which was carried to the United States Court of Appeals, in New Orleans, and which arose in the Northern District of Georgia, and which I have no doubt you are familiar—

A. (Interrupting.) Perfectly so.

Q. I will ask you if it was not adjudged there was cocaine in the mixture?

A. It absolutely was not.

Mr. Sizer: Now, I object to that.

The Witness: There was not—I beg your pardon, Mr. Sizer, for answering the question.

BY MR. MILLER:

Q. Please tell us why you say it was not—were you present when the judgment was rendered?

A. I was practically counsel in that case all the way through it.

Q. Does your name appear as counsel in the case?

A. I think not—the reason of that was, it was while I was Judge, at the time I was on the Bench, but I assisted in the trial of that case all the time, because I was a party to the case, you might say.

Q. Did you testify in that case?

A. Yes, sir

Q. Were you present when your brother, Asa G. Candler, testified in that case?

A. Possibly yes, I think I was.

Q. Didn't he distinctly state in your presence in that case when testifying, that there was cocaine in the mixture?

Mr. Sizer: Now, I object to that.

The Court: The objection is sustained.

Mr. Miller: We respectfully note an exception.

BY MR. MILLER:

Q. Now, you are now interested in the Coca-Cola Company, you say?

A. Yes, sir.

Q. You are a stockholder in it?

A. Yes, sir; I am.

Q. And you are not prepared to say what the formula for the making of Coca-Cola is now?

A. No, I am not.

Q. And therefore you don't ——

A. (Interrupting.) I mean to say I could generally tell—I don't suppose even if I could, the Court could require me to tell the exact formula.

Q. You have stated you could not tell what that formula was?

A. Not exactly, I could not.

Q. And you don't pretend to state whether or not the regular formula was followed in making this product which was seized and is under investigation in this case, do you?

A. No, I didn't manufacture it.

Q. And you are not prepared to state whether or not that formula has been changed, barring the change in the bottling and the fountain syrups, as you have testified to there during the last few years, are you?

A. I think I am Mr. Miller, yes, sir.

Q. Well, you stated a while ago you were not—you could not say whether there was cocaine in Merchandise No. 5 as your company manufactured it, and if you are not prepared to say whether there was cocaine in it then, I ask you if you are unable to state if there has been any change in the formula?

A. Mr. Miller, this is the fact about it — of course, I have been a director of that company up to 1906—I have been its attorney since, I am with its Board of Directors all the time, next to its largest stockholder; I don't believe a change would be made in that formula without my having some knowledge of it, of its being done.

Q. Well, that is not the point.

A. That is all I can say—I am not a manufacturer.

Q. Well, when you were on the Bench you didn't take as testimony what people believed but you took what they knew about a thing.

A. I very often took what they believed.

A. You very often did that?

A. Yes, that is often admissible evidence.

Q. Well, you have heard counsel on your side of the case strenuously object to what people believed, during this trial?

The Court: I have ruled on the questions.

BY MR. MILLER:

Q. State without reference to your belief if you state that this formula has or has not been changed since 1898.

A. It has not been changed within my knowledge.

Q. That means that you do not know whether it has been changed or not.

A. If it has been I know nothing of it and I stated further that I would have known it had there been any change.

Q. That does not mean, however, absolutely that there has been no change?

A. I means what I say; the jury can weigh it for what I say, no more and no less.

Q. Well, that means that there has been no change so far as you know?

A. Yes, sir.

Q. That means if there has been any change you don't know anything about it.

A. Yes, sir; it means that, and taken in connection with my connection with the company and all its business—

Q. About this floor that you testified to. Was that both floors of this building, now, the basement floor and the first floor of the building, that you mentioned?

A. The first floor was the one I undertook to describe.

Q. You did not undertake to describe the basement floor?

A. No, sir.

Q. Oh, well,—

A. Well, I will undertake to do it.

Q. Just describe it.

A. The basement floor, as I recall, was a cement floor.

Q. Was a cement floor?

A. Yes, sir.

Q. Where you had this double floor you were talking about was entirely a different floor?

A. That was the ground floor on which this first syrup was you have talked about, where the kettle was placed.

Q. But after that was done,—that is, after the syrup was put into the kettle where it was, placed over in one corner of that floor, then it was conducted by a pipe down into the basement?

A. Yes, sir.

Q. And down there is where the cooling tanks were in which this mixture was cooled?

A. Yes, sir; in the basement room; they were suspended by cranes from the floor.

Q. What character of floor was that?

A. My recollection is a cement floor—concrete, I think is the name probably.

Q. Concrete?

A. Yes, sir; a concrete floor.

Q. Judge, you have seen the process of manufacturing or mixing of this Coca-Cola syrup going on for years there?

A. Yes; just walking through the factory I saw it; I have never been connected with the manufacture of the syrup.

Q. Well, you know enough about it to tell us whether or not any caffeine is put into this mixture?

A. I think it is the very first thing that goes into it,—is the caffeine.

Q. That is put up in drums?

A. Yes, sir.

Q. And these drums or tin cans, as the mixing takes place in the kettle, why, then the caffeine is dumped into that mixture?

A. No, sir.

Q. How do they put it in?

A. The caffeine is the first thing that goes in,—the water is the first thing and the caffeine is next.

Q. You say the water is the first thing and the caffeine is next?

A. Yes, sir.

Q. How is the water put in?

A. My recollection is that the water—as to the heat of that water—well, I don't know.

Q. It is immaterial about the heat.

A. Well, the first thing that goes into that kettle is the water.

Q. What amount of water, a large quantity, several hundred gallons?

A. I would say so, yes; I don't recall the number of gallons.

Q. All right. What next goes in?

A. The caffeine.

Q. Where is that caffeine procured from?

A. Well, I think possibly all the caffeine that the Coca-Cola Company uses is purchased from the Rennschler & Hasschler Company of New York, and from John F. Queeney of St. Louis.

Q. And it comes there in these tin cans or drums which Mr. Lynch and Doctor Kebler have described?

A. Well, the two companies put it up differently. I am not certain which is which, I just have a recollection about it, that they ship it in different shapes, I don't know which.

Q. One ships it in a smaller receptacle than the other?

A. I don't know which is which; there is a difference.

Q. And after that is done then a quantity of caffeine is taken out, and when that is taken out what kind of a receptacle is it taken out and put in when it is taken out first?

A. I don't know; I don't understand you.

Q. Well, you take it out of the drum, you take the caffeine out of the drum and dump it into the kettle or not?

A. I can't say that I ever saw that done; I don't recall ever having noticed particularly. I have walked by them and seen the thing, but to say that I can tell you accurately, just how, I cannot.

Q. You do not know, then, whether the quantity of caffeine that is put into the kettle, into this mixture, is accurately weighed or guessed at, do you?

A. I think I could say that it is absolutely weighed and measured; I would not want to say so because I don't absolutely know.

Q. I understood you to say that you did not understand——

A. (Interrupting.) I would not state positively that that is a fact.

Q. And when you say you think you can state, do you merely mean that you believe that is the way it is done?

A. I have noticed it—I have never paid any very careful attention to it and I would not like to say——

Q. Well, it goes in as caffeine, it is put in as caffeine, pure caffeine, not as citrate of caffeine, but it goes in as caffeine, that is right?

A. Yes, sir.

Q. It is put in as caffeine?

A. Yes, sir, put in as caffeine.

Q. And then that is added to the water, and then what comes next?

A. The sugar.

Q. And when does the coloring matter go in?

A. My recollection is I think that the coloring matter follows the sugar, I think it does.

Q. What does that coloring matter consist of?

A. Burnt sugar.

Q. What some of the witnesses have described here as "burnt caramel"?

A. I think possibly so. I don't know whether there is any difference between caramel and burnt sugar; I have always known it was burnt sugar, it is a black syrup.

Q. Now, when did your connection with The Coca-Cola Company as it now exists, commence?

A. When it was born.

Q. That is, when?

A. That is, from its very beginning.

Q. You have been connected with the manufacturers down there, or with the claimant, The Coca-Cola Company, in this case ever since the claimant company was organized?

A. Yes, sir; that is right.

Q. And you have been interested in it as a stockholder?

A. Yes, sir.

Q. And your brother is the president of it?

A. Yes, sir.

Q. And your nephew is the vice-president now?

A. Yes, sir.

Q. Now, about this suit that your company has had, isn't it a fact and don't you know that they had one over at Memphis the other day against a company over there which Judge McCall dismissed, — that is, The Coca-Cola Company was making a controversy about it and Judge

McCall dismissed it?

A. There is a record about it, but that is not true, if you asked me that.

Q. (Interrupting.) Don't you know that your company lost that case on all points?

A. On the preliminary injunction only — we are fighting it very vigorously and expect to keep it up.

Q. You lost in his court?

A. On the preliminary injunction only.

Q. Well, you failed to get an injunction?

A. We didn't get a preliminary injunction against the Gayola Company, it is a totally different sort of case to this one — I mean, to the sort of case we have had here — there is no question of trademark involved in it.

Q. Now, your office in this building was on the second floor — I mean, on a higher floor than where this manufacturing took place?

A. Yes, sir; on what was known as the office floor was where my offices were.

Q. What was the output in gallons of the Coca-Cola Company in 1909 at the Atlanta factory?

A. My memory — from memory I could not tell you accurately at all. Mr. Howard Candler can give you that information. He can give it to you accurately; I can not.

Q. Now, you state when you feel like it you get a drink of Coca-Cola, when you feel like you want a drink you go and get it. What kind of feeling induces you to go and get Coca-Cola?

A. The same feeling that I want to take a drink, I see it handy, like the taste of it and take it.

Q. Then also the effect of it, too — you don't mean to say you drink whisky because you like the taste of whisky?

A. Alas for me, I do like the taste of it. It is all good; some is better than others.

Q. We will quite agree with you up here on that, but isn't it a fact, however, that you go and drink Coca-Cola for the effect, isn't that the fact, that you drink it for the effect?

A. I don't know. I suppose, Mr. Miller, to be entirely candid with you I might tell you — I will tell you just how and you con infer any feeling that you want to — I am an early riser and have an early breakfast. All my life I have been accustomed to eating a light breakfast. I will have some fruit, a cup of coffee and a biscuit, and a little cereal, and that is all I want. My girl goes to school and I have always wanted to see her three times a day. And she does not get out of school until three o'clock and we do not have dinner at my house at dark but have it at two

o'clock in the middle of the day, — I always want to see my child at dinner. We have dinner at two o'clock and I have breakfast at seven, and at eleven o'clock I get sort of a habit of going down to the soda fountain, about eleven o'clock, and having the soda fountain man to make me up a glass of Coca-Cola with lithia water and a little lemon juice, and I take it, and the empty feeling is gone and I can go without feeling hungry or empty until two o'clock. At two o'clock I can't sometimes go, and I go down to that fountain and I have the man to take an ounce of Coca-Cola syrup and a raw egg and some Horlick's Malted Milk, or sweet milk, and put that in one of these large milk shake glasses, and I take that for my dinner and I don't eat anything when I do that until I go home for supper.

Q. So that it is when you have a sense of discomfort, why, you go and take a Coca-Cola?

A. When I have a sense of a sort of emptiness, when I feel like I need something to tide me over.

Q. To tide you over?

A. Yes, sir; until I can get something to eat.

Q. To stimulate you, and you go and get Coca-Cola?

A. As I have given it to you, that is the way I drink it, as I have told you.

Q. Where did your company get this coca that was used in your process?

A. Where did they get it?

Q. Yes. In 1909.

A. My recollection is probably——

Q. October, 1909.

A. You mean Merchandise No. 5?

Q. Well, if you used any coca in it or if you used Merchandise No. 5——

A. Merchandise No. 5, it was manufactured by the Schaeffer Alkaloid Works.

Q. Do you know what the contents of Merchandise No. 5 was in 1909, in October, at the date of October in this seized mixture?

A. I don't know that I could swear about it, I only know from hearsay what is in it. I don't know of my own knowledge.

Q. You were asked by counsel if you had any inordinate craving for Coca-Cola, or if you had a craving for Coca-Cola, and by that you mean to understand a craving of the same kind as for morphine or something of that sort, that becomes a regular habit, you understood that to mean that, "iordinate craving"?

A. I never had any inordinate craving in my life.

Q. Well, you know what the words "inordinate craving" implied to you, what you understood by them.

The Court: I think that is obvious to the jury.

The Witness: Yes.

BY MR. MILLER:

Q. Now, there was a judgment in that case that I inquired about between the United States Government and Mr. Rucker ——

A. (Interrupting.) Yes, sir; we obtained judgment.

Q. And that was in the United State Circuit Court of Appeals at New Orleans?

A. The judgment was affirmed by the Court of Appeals. We obtained judgment in the United States Circuit Court for the Northern Division of Georgia. There were two of those cases and both were affirmed by the Circuit Court of Appeals at New Orleans.

Q. Now, I pass you a copy and ask you if you recognize that as a copy of the proceedings in this case.

A. I would not undertake to swear it is a true copy of it; it purports to be a transcript of the record in the United State Circuit Court of Appeals, the Fifth Circuit, in the case of Henry A. Rucker against The Coca-Cola Company, that is what it purports to be.

Q. That is The Coca-Cola Company against Henry A. Rucker?

A. No, sir; I read it like it is.

Q. In the appeal?

A. The record was when appeal——

Q. (Interrupting.) Just look at the case as it was appealed and see how it is styled, Judge.

A. Well, it appears here: "Coca-Cola Company against Henry A. Rucker" — on this side: "Henry A. Rucker, Plaintiff in Error against The Coca-Cola Company," and that is the truth.

Q. It was printed wrong when that was put there?

A. Yes, sir; most of these records are, they have a great many mistakes in them.

Mr. Miller: Well, that is all.

RE-DIRECT EXAMINATION,

BY MR. SIZER:

Q. Do you know whether or not any change was ever made in the formula of Merchandise No. 5 at the time The Coca-Cola Company ceased to manufacture it in Atlanta, Ga., and Doctor Schaeffer or the Schaeffer Alkaloid Works

were employed to manufacture it for that company at Maywood, N. J.?

A. My knowledge is only as stated, both on direct and cross-examination, so far as I know there was none — is all that I can say.

Q. Did you or did you not have anything to do with the making of the contract with Doctor Schaeffer?

A. Well, I discussed the matter with Doctor Schaeffer in connection with my brother.

Q. Was he employed, Judge, simply to make Merchandise No. 5 according to its formula, or was he employed to make any change in it?

Mr. Miller: I object to that, how he was employed. We are inquiring here as to what was in Merchandise No. 5.

The Court: The exception is sustained. The witness has stated that no change was made so far as he knows and that he was not prepared to state what there was in it of his own knowledge before and when it was made by The Coca-Cola Company.

BY MR. SIZER:

Q. Has this Merchandise No. 5 — I mean, as it was made before Doctor Schaeffer took up the manufacture of it, do you know whether there were used decocanized leaves in the preparation of it?

A. My knowledge would be just the same on that — that was my understanding it was, but I don't know.

Mr. Miller: (Interrupting.) I object to that.

The Witness: I could not state.

The Court: The exception is sustained.

Mr. Sizer: We note an exception.

BY MR. SIZER:

Q. That Memphis case Mr. Miller ask you about, state what that suit was or whether or not, in other words, that involved the trademark right of The Coca-Cola Company, The Coca-Cola Company's right to this trademark.

A. Not in any way.

The Court: He said it did not.

BY MR. SIZER:

Q. Did you see this label bearing the picture of the leaves and nuts that is attached to some of these barrels, introduced in evidence here?

A. Yes, sir; I see it now.

Q. On that keg there before you?

A. Yes, sir.

Q. Do you know, Judge, whether that barrel with the label on it, goes only to the wholesaler or does it go to the

consumer of the Coca-Cola?

A. The Coca-Cola syrup is sold, of course, — it is sold to be manufactured into a drink.

Q. And this label is put on the barrels as they are sent to the wholesaler dealers?

A. Yes, sir; that is right.

Q. Or the bottler, as the case may be?

A. Yes, sir.

RE-CROSS-EXAMINATION,
BY MR. MILLER:

Q. These labels all go to the persons to whom shipped; that is, they go with the package through transit in interstate shipments?

A. I take it they are put on every barrel of Coca-Cola.

Q. Your company manufactures Coca-Cola syrup that is used for bottling?

A. Yes, sir.

Q. I will ask you if you recognize that as the usual top that the bottle is covered with and the insignia on the top of the bottle that is used under the supervision of your company for that purpose — you say it protects the bottlers in those rights?

A. Yes, sir; I think that is true.

Q. I will ask to put that in evidence as Exhibit No. 1, I will ask you to do that, to your deposition.

A. Yes, sir; that is known as the Crown Cork which goes on every bottle of bottled Coca-Cola, as prepared for drink.

BY MR. SIZER:

Q. Does the Coca-Cola Company put these things on the bottles?

A. They do not.

Q. Does the Coca-Cola Company have anything to do with putting that top on the bottles?

A. No, sir.

Mr. Sizer: I submit the tops may be put on the bottles by bottlers, that is not competent evidence against the claimant.

The Court: What is the point of that?

Mr. Miller: It was brought out in chief that the simple name as used by this company and likewise, as shown by its trademark, it was put on every bottle of this mixture, and in many of these cases which Mr. Sizer read——

The Court: (Interrupting.) I understand that. What has the label on the bottle got to do with it?

Mr. Miller: I have introduced the top there and I have some samples here I desire to introduce.

The Court: I see you have introduced the top, but what has that to do with it?

Mr. Miller: To impeach the contention of the claimant in this case——

The Court: In what regard?

Mr. Miller: In what regard?

The Court: Yes.

Mr. Miller: To show that the hyphen was not put between those words in the exhibit of their trademark which they propose to testify shows that it does not contain that word — trademark, — as their trademark shows.

The Court: I overrule the exception.

Mr. Sizer: I desire to except to that, it not having been sold by The Coca-Cola Company, — that company has had nothing whatever to do with it, and these tops, they go on the bottles into which the syrup is put — the company has nothing to do with that.

The Court: I understand the exception.

Mr. Sizer: We note an exception.

BY MR. MILLER:

Q. I ask you to examine these labels and state whether or not that is the characteristic label that is put on the bottles about which you were asked in chief.

A. Yes, sir; that is the label that is supposed to be put on the bottle by the bottlers.

Q. File that as Exhibit No. 2 to your deposition.

A. All right, sir.

Q. That signature there, "Asa G. Candler, President," is a facsimile of the signature of the president of this company?

A. Yes, sir; that is right.

Q. Contained on this label, Exhibit No. 2 to your deposition?

A. Yes, sir; that is right.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. With respect to these bottles, are you prepared to say that all the bottles of the bottled syrup are put up with that kind of a top?

A. I know nothing about that.

Mr. Miller: He is cross-examining his own witness, your Honor please.

The Court: I think he is asking him whether he knows anything about — I don't see any cross-examination as to whether this is the typical top or whether all of them are like that or not. The witness does not know anything about it; I overrule the exception.

BY MR. SIZER.

Q. You don't know whether the tops, as put on the bottles——

A. (Interrupting.) Our company does not furnish these tops and has nothing to do with it.

The Court: I should say that I admit that testimony in connection with the contention of the defendants as to distinct use—I think that its bearing on this question, the way in which it is commonly bought by the consumer, has a bearing on the question of distinctive use, the meaning of the word which has acquired distinctive use.

BY THE COURT:

Q. Are you prepared to say of your own knowledge as to the constituents of the ordinary bottled syrup? I do not recall any evidence as to that. I mean, how much of the syrup and how much of the carbonated water and how much of the syrup is in the ordinary bottle?

A. One ounce of syrup to seven ounces of carbonated water is the agreement between the bottling company and The Coca-Cola Company.

Q. That is the standard?

A. Yes, sir.

Q. But it is of slightly thicker syrup?

A. Yes, sir; that is true.

Q. And that makes a drink of Coca-Cola?

A. Yes, sir; as bottled.

Mr. Miller: That is under an agreement, that is, between the bottler and the Coca-Cola Company? That is, if the bottler lieves up to it?

The Witness: Yes, sir.

BY MR. MILLER:

Q. And that is an agreement with your company?

A. Yes, sir.

Q. And your company permits the use of this trade name or trademark as shown on this top and likewise on the label which you have filed as Exhibits 1 and 2, and the facsimile of your president's signature?

A. (Interrupting.) I don't know — I have never seen a top of that kind — my attention was never called to it, but it is done generally with our consent so far as I know anything about it.

Q. I will ask you whether or not this is permitted by your company to these bottlers throughout the country.

A. As to that label I can state unhesitatingly, yes. I know about that label. I have seen that label often, and that label is used all the time and used with my knowledge.

Whether it is with the knowledge of anybody else or not, I don't know, but I know all about it.

Q. It is not true that your company has, in various of these suits, endeavored to protect the bottlers in the use of this top and label?

A. No——

Q. (Continuing.) — and was not that very distinct question involved in the cases of which Mr. Sizer submitted a summary this morning?

A. We have always in every instance undertaken to protect the authorized bottlers of Coca-Cola in the bottling of genuine Coca-Cola syrup, and wherever any one to our knowledge has undertaken to bottle anything else and call it Coca-Cola, where they were not authorized bottlers of Coca-Cola, we have to the utmost of our ability undertaken to protect the bottlers.

Q. I apparently did not make myself clear. Is it not true that your company has undertaken to protect these bottlers in the use of this trade name and trademark?

A. In the use of the trademark — our trademark, yes. If they have changed it in any way, we know nothing about it and it has never been brought to our attention.

Q. At least it has in this trademark, Exhibit No. 2 to your deposition?

A. That particular trademark I have seen, and they have used that to my knowledge. I have known about it all the time.

Q. And your company has all the time undertaken to protect that?

A. Wherever any one has undertaken to infringe upon their rights, we have undertaken to protect the bottlers all the time.

Q. As far as you know, this top is used customarily, as you said a while ago, on top of the bottles after the contents were bottled?

A. I have never noticed the top sufficiently to tell you whether that was true or not. Whether they used more than one sort of top, I cannot tell you. I rarely see the bottled goods at all. I never see it except in Atlanta, and I used to go down to the bottling works in Atlanta and drink their bottled product down there.

Q. Then, of course, you don't know what is put into the bottled mixture.

A. No, sir; I did not stand there and watch them to see that they did it all the time the same way.

Mr. Sizer: I submit that that top has not been sufficinetly identified as the top used on this bottled Coca-Cola, even if the top used by the bottlers would be testi-

mony against us.

The Court: I think the witness has identified it.

Mr. Sizer: He says he had never noticed the top sufficinetly to state whether this was in their exact form or not.

The Court: Whether it was in the form that all bottles were put up in, but he did identify it as one of the forms.

The Witness: I meant to identify it as — not as prepared by the Coca-Cola Company but a corn cork. I know the use of corn cork on these bottled goods, but I could not say of my own knowledge whether this is one.

The Court: If the witness does not know of his own knowledge exactly what cork was used, that would be excluded.

Mr. Sizer: I am going to ask about that now.

BY MR. SIZER:

Q. Do you remember that you ever saw one of those bottle tops similar to the one presented here in which the hyphen between the words "Coca" and "Cola" was omitted?

A. I never had my attention called to that. I do not recall that I ever saw one either way. I never noticed that corn cork closely. I do not know anything about it.

Mr. Sizer: Now, I submit, Your Honor——

The Court: I exclude that, not the label but the cork—

The Witness: No, I know all about that label. There is no question about that. I have seen that many times.

The Court: There should not be any difficulty in this case in finding out exactly the tops used.

Mr. Sizer: No, sir; we will show exactly about that.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What do you mean when you stated in chief that this was the top.

A. It was handed to me and I saw Coca-Cola on it and never noticed it and I said that is the corn cork that goes on Coca-Cola.

Q. Did you not state in that same connection after looking at the name as it appeared on that top and studying it, that that was the characteristic trademark, or facsimile of it, that appeared on the Coca-Cola bottles, and was not that the question that was asked you?

A. I don't think I went into details of it to that extent. I answered the question just off-hand, yes, this the Coca-Cola bottle top.

Q. And you had the top before you in your hands?

A. I just glanced at it and saw the red Coca-Cola that

is before my eyes all over the country, and I said "Yes, that is the Coca-Cola top."

(Witness excused.)

CHARLES HOWARD CANDLER,

the next witness called on behalf of the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Please state your full name.

A. Charles Howard Candler.

Q. What is your age?

A. Thirty-two.

Q. Are you connected in any way with the Coca-Cola Company?

A. Yes, sir.

Q. In what capacity?

A. I am its Vice-President, and in that capacity, General Manager of factory.

Q. Do you have charge of the manufacture of Coca-Cola syrup?

A. Yes, sir.

Q. How long have you been occupied in that position?

A. That latter position, since — I have been Vice-President since 1906, and I have had charge of the manufacture of Coca-Cola in the Atlanta factory since 1903.

Q. Before that time were you connected with the company in any way?

A. Yes, sir; my first connection was as a laborer in the factory, after which I was put on the road as traveling salesman, and after that, I was made manager of the New York branch office, and from there, I came back to Atlanta, taking up the position of General Traffic Manager, and from that I went into the office as Vice-President and General Manager of the factory.

Q. So that how long altogether in these various capacities were you connected with the Company?

A. Thirteen years.

Q. During all this time, had this product been manufactured and sold on the market and advertised under the same name, Coca-Cola?

A. It had.

Q. You were in charge of manufacturing the syrup at the time these visits of Dr. Kebler and Lynch were made?

A. Yes, sir.

Q. And at the time the product was seized in this case?

A. Yes, sir.

Q. Can you draw up on the black-board a sort of sketch of the two floors on which this syrup was manufactured?

A. Yes, sir.

Q. I wish you would do that. Explain the drawing as you make it.

A. This is necessarily a crude drawing, because I want to save time. It will not be absolutely accurate.

Q. Just draw a diagram of it, that is all I want.

(During the testimony the witness is making various drawings on the black-board.)

A. That represents in a crude way a kettle. This is —

Q. That kettle is on the floor on legs?

A. Yes, sir. It comes up about two-thirds of the way here.

Q. How high is the top of it?

A. Four and a half feet.

Q. And the platform extends around about how much of the circumference?

A. About one-half.

Q. What floor of the building is that on?

A. The street floor.

Q. The floor that you come in on as you come in from the street?

A. Yes, sir.

Q. Now, proceed.

A. This floor is made up of a double floor, so to speak, the top layer is seven-eighths tongued and grooved and the bottom layer is three-inch spline planking, plank which has been grooved and the splines driven into it, making one running across the building and one running with the building, a dust and water proof floor. The building we occupied at that time is what contractors term heavy slow-burn, mill construction. The platform was of sufficient area to accommodate about twenty-five barrels of sugar. It took approximately about that much to manufacture a completed tank of Coca-Cola, between twenty and twenty-five barrels of sugar, depending on the amount of sugar in the barrel.

Q. How much will the kettle hold?

A. Three hundred gallons.

Q. How many kettles to make a tank of syrup?

A. Four meltings of the kettle make one batch of Coca-Cola.

Q. The sugar was dumped into that from the platform?

A. Yes, sir; in quantities sufficient to make one melting, about five barrels of sugar, 350 pounds to each barrel.

Q. Proceed.

A. As the sugar is dumped — the water is run into the

kettle from a storage tank which has previously received filtered water out of the city mains. We use an International Filter, which is generally accepted to be one of reliability. A sufficient quantity of water is brought in that to keep the sugar from burning when it comes in contact with the sides of the kettle. After the sugar is melted, the coloring is put in.

Q. That is caramel or burnt sugar?

A. Yes, sir. Then the kettle is filled with water to bring it up to the quantity of water required for that kettle full. The caffeine is put in the third or fourth melting for obvious reasons.

Q. You say for obvious reasons; why?

A. We want the caffeine to come in contact with hot syrup and be followed by hot syrup; in other words, to fulfill the operation, it takes four meltings to make a tank; we put the caffeine in either the second or the third melting so as to insure it being in a hot medium all the time.

Q. All the caffeine that goes into the tank would be put in the second or third of these meltings, then?

A. Yes, sir.

Q. That, you say, is to facilitate the absorption of the caffeine?

A. To keep the caffeine at an even temperature, to keep the syrup at an even temperature and let it all cool off evenly.

Q. What is done with the sugar, then?

A. After the sugar is melted, the contents of the sugar are controlled by a gate valve, a pipe line coming down in the floor sustained from the ceiling by means of hangers, and we have certain copper-lined, wooden cooling vats, suspended by means of a cradle, which is made up of large eight by eight or eight by ten stringers in the shape of this, (indicating). They are sustained by rods going right up to the ceiling, holding the tank up. The pipe drops down into the tank like that. The finished syrup is left in that tank until it is cold. After it is cold, there is a pipe coming out of the bottom of this tank going off for convenience into a mixing tank which sets on a kind of platform or support, and that in turn sets on the floor. When we get ready to mix this syrup in this mixing tank, the laboratory is situated over in another part of the building, containing in one corner of it a funnel attached to a pipe line which leads directly into the mixing tank, through which various flavoring extracts, glycerine, Merchandise No. 5, and lime juice are conveyed. The phosphoric acid, for obvious reasons, is poured directly through the man hole in the top of the tank.

Q. Why do you say for obvious reasons?

A. Phosphoric acid has a quite active influence on metal pipe through which the flavors are conveyed.

Q. Corrodes them?

A. Yes, sir. This tank is wood in its entirety. In the bottom of the kettle pipe we have a copper mesh, strainer, to catch the larger particles of wood and nails and trash, such as is found in all sugar, regardless of who manufactures it.

In the bottom of this tank here we have a trap strainer, manufactured out of copper, fine copper mesh wire, and the goods are strained through it, and if it has anything in that this first mesh did not catch, it is caught on this strainer.

We get the goods out of the mixing tank by means of a draught arm, like one on a soda fountain, which ends in a similar pipe. This pipe here is a three-inch galvanized pipe and there are valves here. A barrel is set directly under that on a rack. At this opening here, where the pipe goes out, there is another strainer, finer than either of the two previous strainers, to catch anything that might have passed possibly through those two strainers. All the funnels we use for directly filling the barrels, are equipped with cheese cloth covers so that when the syrup hits the cheese cloth, the cheese cloth acts as strainers and they keep any dust or dirt that may have gotten through the copper strainers from going into the barrels. When filled, the barrels are sealed and set aside for use.

Q. As the syrup comes from the first floor down to the basement, it is a mixture of sugar, water, caramel and caffeine?

A. Yes, sir.

Q. Then, when it comes to the mixing tank, the other ingredients are put in?

A. Yes, sir.

Q. When it is drawn off into the barrels, it is complete Coca-Cola syrup?

A. Yes, sir.

The Court: That mixing tank contains four meltings?

The Witness: The cooling tank contains four.

The Court: It all gets into that?

The Witness: Yes, sir; the entire quantity of caffeine, colored syrup goes into the cooling tanks from the mixing tank.

The Court: You have four meltings on the first floor?

The Witness: Yes, sir.

The Court: Those are distributed in the various cooling tanks?

The Witness: No, sir; they go into one melting tank.

The Court: The cooling tank contains four meltings?

The Witness: Yes, sir; it has a capacity of fifteen hundred gallons and we put in twelve hundred gallons.

The Court: There is no mixing in the cooling tanks?

The Witness: No, sir.

The Court: The mixing process is entirely in the mixing tank?

The Witness: Yes, sir.

BY MR. SIZER:

Q. What process do you follow to mix these ingredients in the mixing tank to incorporate them with each other?

A. We have in the mixing tank a blade of cypress wood split paddle. That means to convey the idea that part of the paddle is stationary and the other arms run, the fixed portion of the paddle making resistance, and the stirring insuring a thorough mixture.

Q. Is that something like the paddles in an ice cream freezer?

A. The principle is essentially the same.

Q. And those paddles in operation while the syrup is being drawn into the barrels?

A. Yes, sir. We start up the mixing when all the ingredients are in the mixing tank. That mixing is kept up until such time as we have found by experience will thoroughly mix all the ingredients, and when the barrels are ready to be filled, that mixing is continued, so that a uniform syrup goes into the barrels, the same syrup in the last as in the first.

Q. How many employes have you in the factory engaged in this business?

A. About eight.

Q. What is their color?

A. Mixed, some are white, some are colored.

Q. About how many colored and how many white?

A. As I recall it, we have three white men and possibly five negroes.

A. Who does the drawing-off of the mixed stuff off into the barrels, the white or colored employes.

A. Two white men.

Mr. Miller: I object to that. I wish this examination to be confined to October, 1909.

The Witness: I am confining it to that time.

Mr. Sizer: I intended to do that and the witness so understood.

BY MR. SIZER:

Q. Now, these conditions all existed in October, 1909, did they?

A. Yes, sir.

Q. What was the name of the man you had that dumped the sugar into the kettles first?

A. James Guest, we called Jeems for short.

Q. What was his official title?

A. We called him the "cook" although we do not cook Coca-Cola.

Q. How long has he been employed by the Coca-Cola Company in that capacity?

A Since 1889 — not in that capacity. He has been in that capacity since 1906.

Q. Does he chew tobacco.

A. No, sir.

Mr. Miller: I object to that.

The Court: On what ground?

Mr. Milier: He asked if he chewed tobacco.

The Court: It is understood that all of this questioning relates to October, 1909, if that is the ground of your objection.

The Witness: I am endeavoring to state as to that.

Mr. Sizer: Whenever I ask any questions, if I do not specify, I refer to conditions existing in October, 1909.

BY MR. SIZER:

Q. Did this cook chew tobacco in October, 1909?

A. He did not.

Q. Did these employes have different clothes and shoes to wear in the factory from those they wore on the street?

A. Yes, sir.

Q. What kind of shoes and clothes do they put on when they come in?

A. Overalls and jumpers, and heavy shoes to protect their feet from the cold or heat, hot sugar might spatter around.

Q. Do they wear those shoes on the street, or only use them in the factory?

A. Absolutely only use them in the factory.

Q. At the time this seizure occurred in October, 1909, was there a cover over the melting kettle?

A. Yes, sir.

Q. What kind of a cover was it?

A. A galvanized piece of sheet iron properly attached and on a wooden frame for easy handling. The cover was divided in the middle like that, had a rigid support in the middle, the front part of the cover that looked out toward the open part of the factory was stationary; in other words, it didn't open, it would stay closed all the time. The rear part of the cover opened over against the shaft of the

741

stirring arm, so as to allow the sugar and coloring and the caffeine to be put into the kettle. In other words, half the kettle was covered all the time and the other half was only opened when the ingredients were being put into the kettle. That was on a hinge, that top.

Q. Suppose the sugar spattered out from the barrel on the platform while the cook was dumping it in the kettle, what implement did he have to get that in the kettle?

A. The sugar would not spatter out from the barrel onto the platform, it would splatter against the cover, but if in emptying the barrel of sugar some of it happened to get out on the platform, we had a thin steel scoop, ordinarily used for scooping coal.

Q. Do you mean that that was used for scooping coal?

A. No, sir, it was manufactured for that purpose.

Q. That kind of a scoop?

A. Yes, sir, it was used for the purpose of gathering up that sugar from the platform and putting it into the kettle.

Q. Was there any dirt on that platform except the sugar or syrup that got on to it?

A. Not a bit.

Q. If any sugar or syrup got on to the floor, did you scrape that up and put it back in the kettle?

A. No, sir.

Q. What would you do?

A. Wash it up with a hose and scrubbing brush.

Q. You had water connections and used hose to clean the floor?

A. Yes, sir.

Q. Where did the washings from the hose go to?

A. On that first floor we would sweep them out of the door on to the sidewalk.

Q. In the basement story, where would they go?

A. Into a trap provided and connected to the city sewer.

Q. Did that sewer connection have a regular trap in it as any other sewer connection?

A. Yes, sir.

Q. Were there any water closets on those two floors?

A. There was none on that basement floor.

Q. How was that factory ventilated?

A. In accordance with the building ordinances and of good building construction.

Q. This factory is located in Atlanta?

A. Yes, sir.

Q. And subject to certain regulations that prevailed there?

A. Yes, sir.

Q. How often were the tanks on the floors in those two stories cleaned out?

A. Periodically, and as often as needed or as was necessary.

Q. Whenever they needed washing they had a good washing?

A. Invariably.

Q. Do you know what Merchandise No. 5 is made from?

A. Yes, sir.

Q. How do you know it?

A. I went through the laboratory of Doctor Schaeffer.

Q. At Maywood?

A. Yes, sir.

Q. What is it made of?

A. Coca leaves and kola nuts, in the main.

Q. Before the coca leaves are used, do you know whether the cocaine is extracted from it?

A. Not of my own knowledge.

Q. But you do know that coca leaves and kola nuts are used in the manufacture of Merchandise No. 5?

A. Yes, sir.

Q. And that Merchandise No. 5 as received from Doctor Schaeffer, is put in as one of the ingredients of Coca-Cola?

A. Yes, sir.

Mr. Miller: I object to that form of examination.

The Court: That objection is sustained.

BY MR. SIZER:

Q. State whether or not Merchandise No. 5 as it comes from Doctor Schaeffer is put in the Coca-Cola syrup.

A. It is.

Q. Is there any change made in the condition of its before it is put in?

A. Absolutely none.

Q. Where do you get that?

A. From the Monosanto Company and from the Schaeffer Alkaloid Chemical Works.

Q. Is that caffeine put into the syrup on the first floor without any change as it comes from the factory?

A. Absolutely.

Mr. Miller: We object to that.

The Court: That is somewhat leading.

BY MR. SIZER:

Q. You speak of the Monosanto Chemical Works. Whose manufacture?

A. John F. Qeeney.

Q. Since you have been manufacturing this product, has it ever been manufactured and sold under any other name than Coca-Cola?

A. No, sir.

Q. Has the company ever advertised or sold it under the name of "Dope" or "Coke"?

A. No, sir.

Q. You testified about a number of strainers being used in the process of conveying the syrup from the kettle on the first floor down to the mixing tank in the basement and the last strainer, I believe you say, is cheese cloth.

A. Yes, sir.

Q. I want to ask you if you have seen the debris that was collected out of this keg offered in evidence by the Government the other day.

A. Only casually.

Q. From the examination you made, what does that consist of?

A. Largely sawdust.

Q. Where, if at all, could that sawdust have gotten into the mixture?

A. It was in the keg.

Q. How do you treat those kegs before you put the mixture in them?

A. Steam from a jet, with a boiler pressure of eighty pounds.

Q. You say it might have come or you think it came possibly from the sawdust in the keg; how could the sawdust get in the keg?

A. In manufacturing kegs coopers use a drum saw which in a large measure chews the wood more than it cuts it, leaving particles of sawdust and small quantities of wood adherent to the side of the wood, and when these kegs are assembled and set up, there is a lot of this sawdust that just gets in the cracks of the keg and they are held there by means of pressure exerted by the hoops, and it would be impossible to get them out.

Q. Now, if the head of the keg is knocked in or violently struck, might not that sawdust be knocked out?

A. Yes, sir. If you knock the head of a keg you loosen every joint in it.

Q. Can you form or express any opinion from what you know of the manufacture of this syrup as to how that leg of a fly and a piece of a bee's wing got into there?

A. I cannot.

Q. Could it have gotten in through the mixing tank?

A. No, sir; the strainers would have caught it.

Q. If it got in there it must have come in from the keg?

A. Yes, sir.

Mr. Miller: I object to that. That is leading. The uestion is very suggestive and Mr. Sizer knows it.

The Court: The objection is sustained and the answer xcluded.

BY MR. SIZER:

Q. Is there any other way in which those articles could ave gotten into the syrup except through the keg?

A. None that I know of.

Q. You say these kegs are thoroughly washed before lled?

A. Yes, sir.

Q. Is that the only thing you can do?

A. The only thing we know of.

Q. I want to ask you further now: Do you know hether or not this syrup is strained again as it is taken om the keg before it is put in bottles or used?

A. Invariably. Every soda water man recognizes the ct that he has to strain the substance before it is put in he fountain or put in bottles. They have instructions om us to do it.

Q. That is all you know?

A. Yes, sir; I don't know whether they do.

Q. You heard Mr. Lynch and Doctor Kebler testify bout a lot of second-hand barrels in the yard. I want you o state what those barrels were.

A. Before we take into stock any second hand barrels, he first thing that is necessary is to test them to see hether they are satisfactory for our purpose, and if they o not stand up to the test we discard them and they are rned back to the parties from whom we bought them, but s was the case at this time nearly all of our second hand arrels were obtained from out of the State on account of here being no knowledge of any liquor being sold in Atanta, and we could not turn them back on to the people om whom we bought them, so we threw them in the yard o be disposed of to the Standard Oil people who put heavy rease in them, or to other people, and those that were acepted were set aside and put in stock, and when we got eady to draw the contents from the mixing tank a sufficient number of packages, depending on the kind of packges that we wished to fill from the tank, was assembled ear the steam jet to which I have referred, and they were ll steamed and then conveyed into another room and then onveyed into the drawing room and washed out and filled nmediately.

Q. You say all the second hand barrels that were used ere treated with this steam jet?

A. Yes, sir.

Mr. Miller: We object to that; let him say.

Mr. Sizer: He had stated that and I wanted to get it out again.

BY MR. SIZER:

Q. How long are your barrels held over the steam jet and what is the force and degree of heat of the steam jet?

A. I do not know the degree of the heat, but they are left over the steam jet for approximately three minutes. We have sometimes had a barrel to burst and fly all to pieces on account of the fact that the bung hole was smaller than we thought and did not allow the steam to escape fast enough.

Q. Have you sufficient knowledge of bacteriology to be able to state whether the steam heat to which those barrels were subjected, was sufficient to kill any germs?

Mr. Miller: We object to that. He should give his qualifications first.

The Court: The objection is sustained.

BY MR. SIZER:

Q. Can you qualify as a bacteriologist?

A. No, sir, I cannot.

Q. Do you furnish to your customers any directions with respect to the proportion in which the Coca-Cola syrup should be mixed with water?

A. Yes, sir.

Mr. Miller: That is all right, I have no doubt, but I object to the introduction of those labels that he has because I think they are utterly irrelevant.

The Court: The objection is overruled.

BY MR. SIZER:

Q. Look at these papers I hand you and state if they are the regular form of instructions you send out.

A. This first paper is a label and it has on it the directions: "Draw one ounce of Coca-Cola in seven-ounce glass, then fill glass with large stream of soda water stirring with a spoon that Coca-Cola may be thoroughly mixed."

Q. That is furnished to the fountains?

A. Yes, sir; the other lot of papers is a price list for Coca-Cola in various sized packages on one side, and on the other side the glass and the price list, this glass is the glass we sell to the trade and has a graduated mark on it. Our idea is that often dispensers use too much syrup and we put the directions on the opposite side, being the directions for dispensing: "To Dispense — Draw one ounce of Coca-Cola syrup in seven-ounce glass, then fill glass with

large stream of soda water, stirring with a spoon that syrup may be thoroughly mixed."

Mr. Sizer: We want to offer these two papers in evidence.

(The papers were offered in evidence and exhibited to the jury and marked with the Exhibit Nos. — and —.)

The Court: Offer just one each.

Mr. Sizer: I have a large number; it is simply for convenience.

BY MR. SIZER:

Q. Does the Coca-Cola Company sell this glass to soda fountains?

A. Yes, sir.

Q. Is this one of them? (Indicating.)

A. Yes, sir.

(The glass referred to was offered in evidence and exhibited to the jury.)

BY MR. SIZER:

Q. How much does that hold?

A. Seven ounces. This is a seven-ounce glass.

Q. What does that mark near the bottom indicate?

A. One-seventh of the glass.

Q. Up to that mark would indicate the amount of syrup ——

A. That should be given in dispensing Coca-Cola.

Q. Why do you give those instructions?

A. In order that a more palatable — an absolutely palatable drink shall be served. It has been our experience that these proportions make the best drink.

Q. Suppose you get more syrup in there, what would be the effect?

A. It would likely be too sweet and thickened.

Q. Would it or not be as pleasant a drink as the one ounce of syrup to the six ounces of water?

A. As I have already stated, our experience is that it would not be.

Q. In the bottler's syrup, do you know in what proportion the syrup and water is used in putting up the bottles?

A. One ounce of syrup and seven ounces of water in an eight-ounce bottle.

Q. So that when the goods are bottled there is one ounce of syrup and seven ounces of water?

A. Yes, sir.

Q. And in the drink at the soda fountain, seven ounces, one ounce of syrup and six ounces of water?

A. Yes, sir.

Q. Have you had any experience in the drug business?

A. I worked in the Jacobs Pharmacy a while, helping the chemist to compound pharmaceuticals.

Q. As the manufacturer of Coca-Cola, do you get circulars from the various manufacturers of drugs?

A. Yes, sir; from those that principally deal in drugs.

Q. I hand you a number of documents and I ask you to state first what they are, and in the second place state how coca leaves and kola nuts are described and listed and priced in those circulars.

Mr. Miller: I have no objection to his stating what they are or as to how they are listed, but I object to the rest of the question.

The Court: I overrule the objection. It is a question of fact as to how these words are used. That is the distinction.

A. Those are colored magazines such as go to druggists and manufacturers of pharmaceutical preparations. In the back, practically of all pharmaceutical journals, is a monthly price list which is subject to change. I have gone through these journals and turned down the pages and marked the references where they refer to coca-leaves and kola nuts. And they invariably state as to coca leaves and kola nuts.

Mr. Miller: We object.

BY MR. SIZER:

Q. Give the list to the jury.

A. The Midland Druggist, March, 1911, contains prices of coca leaves but does not contain kola nuts.

Q. Does it contain anything that is derived from cola?

A. It contains two patent cola derivatives.

Q. Does it contain anything under the single name of cola?

A. It does not. The next is dated February, 1911, and does not refer to coca — oh, yes, it does; on page 307 it refers to coca leaves and price and kola nuts and the price. The N. A. R. D. Notes, meaning the Notes of the National Association of Retail Druggists, purporting to be a journal of the retail druggists, date March 9, 1911, and on page 1379 coca leaves and on page 1380 kola nuts. Bulletin of Pharmacy, December, 1910, contains on page 52 kola nuts and has no reference to cola leaves or to coca leaves or coca that I can find. The Pacific Drug Review, February, 1911, on page 2 of the price lists, refers to coca leaves and on page 8 of the price list refers to kola nuts, and also to kola nut powder. The American Druggist, March 13, 1911, a

recent publication, refers on page 84 of the price list to coca leaves, Truxillo and Huanaco, two kinds of coca leaves. On page 88 it refers to kola nuts and again to the two kinds of cola leaves under the head of "Leaves."

The Practical Druggist, March, 1911, refers on page 71 to both kinds of coca leaves under the head of "Leaves," and to kola nuts, dried.

The Western Druggist, February, 1911, under Leaves, refers to coca leaves on page 72, and on page 73 kola nuts. That is the bunch that you have given me.

Mr. Miller: We offer the additional objection that all of these publications during this year or the latter part of last year, all since this seizure and for all we know may have been manufactured expressly for this case.

The Court: I think that is too hypothetical. I think 1911 is sufficiently close. If there has been any change you can show it.

Mr. Miller: Note an exception.

BY MR. SIZER:

Q. To remove any doubt on that question I ask you whether you have manufactured or have had manufactured any of those publications for the purposes of this suit.

A. I have not.

Q. You say you served in a drug store for a short time?

A. Yes, sir.

Q. I will ask you whether you know that coffee and tea extracts are regularly sold as soda fountain products.

Mr. Miller: We object to that. They might sell dynamite and other things that would kill people but two wrongs do not justify another wrong and I object to it.

The Court: What is the ground for the introduction of that?

Mr. Sizer: The ground is that tea and coffee, like other caffeine containing drinks, are commonly sold at fountains.

The Court: Do you propose to show that fact?

Mr. Sizer: Yes.

The Court: And that they contain approximately the same amount of caffeine?

Mr. Sizer: Or more.

The Court: If you can connect this up you can proceed.

BY MR. SIZER:

Q. Do you recall any visits made to your factory prior to the institution of this suit by Doctor Kebler and Doctor Lynch?

A. Yes, sir.

Q. How many visits did Doctor Kebler make to your factory?

A. Three.

Q. What were the dates?

A. The first visit was August 13, 1907.

Q. Did he call on you on that occasion?

A. Yes, sir.

Q. Did he tell you what he wanted?

A. Yes, sir.

Q. What did he say he wanted?

A. He said he wanted to make an inspection of the factory to find out how we manufacture Coca-Cola.

Q. Did you take him around the factory?

A. Yes, sir.

Q. Show him everything he wanted to see?

A. Everything he asked for.

Q. Did he go through the four floors of the building?

A. No, sir.

Q. How many of them?

A. Only on the first or street floor, and the basement.

Q. Where the goods were manufactured?

A. Yes, sir.

Q. What was the date of the next visit?

A. I don't remember the date but he testified some time in the middle of the following summer.

Q. Who was with him on that occasion?

A. A lady that he introduced to me as his wife.

Q. Did he come to see you before going through the building on that occasion?

A. My recollection is that he left his wife in the vestibule or entrance to the building and came to my desk stating that the Coca-Cola factory was one of the points of interest in Atlanta and his wife was there with him and he would like to show her over it, to which I was agreeable, and took pleasure in showing her around.

Q. Did he say on that occasion he wanted to make any official inspection?

A. He did not.

Q. What was the date of the third visit and with whom did he come?

A. October 20, 1909.

Q. Who was with him at that time?

A. Lynch.

Q. Did they come to your office and call on you on that occasion?

A. No, sir, they did not.

Q. How did you first learn of the presence of Doctor Kebler and Doctor Lynch in the building at that time, and

where were they or either of them?

A. As I came into the factory from my noonday meal, my manager, of the manufacturing department, came to me and seemed outraged ——

Mr. Miller: Now, we don't care for that.

BY MR. SIZER:

Q. You need not tell that.

A. I have to tell that I was apprised by someone.

Q. You were apprised by your manager that someone was there?

A. That the Government inspectors were in the basement.

Q. Did you go to the basement?

A. Before I took off my hat I went immediately to the basement and asked what they were doing there and what the purpose of their visit was, and also that I thought it was proper that they should have seen me or someone in authority before proceeding to make an examination of the factory. They said they didn't care whether they saw anybody or not.

Q. When you went down and saw those two gentlemen, where was Doctor Kebler?

A. Doctor Kebler was standing on one of the stringers supporting the cooling tank, looking into the cooling tank. He had easy access to that because we kept a stepladder in the basement all the time for the purposes of our men getting into the tanks for cleaning purposes.

Q. Where was Doctor Lynch?

A. Close in the neighborhood taking notes, but he was not on a stranger.

Q. Did you hear Doctor Lynch testify about buying a sample of Merchandise No. 5 from you?

A. Yes, sir.

Q. Who was present when he bought that sample?

A. When the actual sale was made I was the only one.

Q. You sold him the sample?

A. Yes, sir; and took his Government voucher for it.

Q. Did your father come in?

A. No, sir. I went to my father who was the financial man ——

Mr. Miller: We don't care about the motives that actuated him in going to his father. If he went to his father, all right.

The Witness: I have to explain why I went. I will have to tell why I went.

BY MR. SIZER:

Q. You did go to your father?

A. I didn't know anything about Government vouchers and I wanted to ask about it.

The Court: It is utterly immaterial and does not hurt one way or the other, but the objection is sustained.

BY MR. SIZER:

Q. You need not state why you went. Did Mr. Lynch go with you to your father?

A. No, sir. I brought my father to him.

Q. Now, what occurred between Mr. Lynch and your father with respect to the purchase of that sample of Merchandise No. 5?

A. My father stated to him that in the absence of any definite knowledge on his part as to the requirements of the law, he doubted whether the Government had any authority to buy one of our essential raw materials, and that he had none of it for sale and that he had only Coca-Cola for sale; but if the Government was entitled to it, he would rather give it to him than sell it to him.

Q. Did your father display any heat or excitement or indignation?

A. None other than what I have stated.

Q. Did he swear?

A. No, sir.

Q. Does your father use profane language?

A. No, sir; and never did in his life.

Q. Did he at that time use profane language?

A. No, sir.

Q. Did you hear the language that Mr. Lynch attributed to your father?

A. Yes, sir; I thought it was very far-fetched.

Q. Did your father use that language?

A. No, sir. Doctor Kebler had never been known as a carpenter by anybody that I know of.

Q. I will ask you if you have sent any samples of Coca-Cola syrup or any of the ingredients that enter into the manufacture of Coca Cola syrup to any one within the last year or so, and if so, give the dates and the names of the persons to whom you sent the samples, — and I want you to identify some of the samples.

A. In the latter part of January I sent to Doctor J. W. Mallet two bottles, one of which contained Coca-Cola syrup and the other the ingredients of Coca-Cola syrup except Merchandise No. 5, marking the bottles Nos. 1 and 2.

Q. That was Dr. J. W. Mallet, at what place?

A. Charlottesville, Virginia.

Mr. Miller: What was the date of that?

The Witness: The latter part of January, 1910. The

bottle marked No. 1 was the one which contained the ingredients without Merchandise No. 5. Bottle No. 2 contained Coca-Cola syrup. I sent that same line of samples at the same time to Dr. Charles Caspari of St. Louis.

BY MR. SIZER:

Q. Did you number those the same way?

A. Yes, sir. On April 21, 1910, I sent the same samples numbered in the same way to Doctor Wesener.

Q. At Chicago?

A. Yes, sir. On December 8, 1910, I sent to Doctor Emerson of Boston by prepaid express two bottles, one of which contained all the ingredients necessary to make one gallon of Coca-Cola syrup except the sugar. The other bottle contained all the ingredients necessary to make one gallon of Coca-Cola except the sugar and coloring matter, and I so marked each bottle.

Q. Were the samples of Coca-Cola syrup you sent to those different people identical in their composition with the other syrup that was seized in this case?

A. Exactly.

Q. Were the ingredients that you sent the same as were used in the manufacture of the article seized?

A. They were.

Q. Did this colored cook that poured the sugar into the kettle ever work around it with nothing on but his undershirt and trousers?

A. No, sir; he would have been run out of the factory.

Q. What did he wear on the upper part of his body?

A. It is what is called a jumper, made out of the same material that overalls are made of.

Q. Did he ever wear shoes with holes in them and with his toes sticking out, and did he ever kick the sugar into the kettle with his toes?

A. No, sir; that would have been dangerous, and he never did.

Q. How would that be dangerous?

A. In putting this large heavy weight in the kettle it might splash out of the kettle and give him a very severe burn. He had to wear heavy shoes for protection, the ordinary brogan shoes with heavy soles on them.

Mr. Sizer: That is all.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Just take this glass that you furnish to the trade and point out to the jury the hypen in the word "Coca-Cola."

A. I am unable to do that.
Q. You have the glass there.
A. Yes, sir, but it is not on there.
Q. You cannot find any hyphen in it?
A. No, sir.
Q. That is the glass you sent out with the Coca-Cola?
A. That is the one.
Q. Now, take one of these labels that you filed. I noticed on the bottom the signature: "The Coca-Cola Company by Asa G. Candler, President." Is that a facsimile of your father's signature.
A. Yes, sir.
Q. Now, find the hyphen in that.
A. I see a hyphen between the words, "Coca" and "Cola."
Q. Indicate that to me.
A. Here it is. (Indicating.)
Q. That is what you refer to?
A. Yes, sir; I put my pencil on it because it is too small to put by finger on.
Q. But you found none on the glass?
A. No, sir.
Q. Did you hear the testimony of Asa G. Candler in the controversy between Rucker and The Cola-Cola Company?
A. No, sir.
Q. You didn't hear your father testify?
A. No, sir; I did not go into the court room during the trial at all.
Q. At what stage of this mixing process of this preparation of Coca-Cola syrup is the caffeine put in? I did not quite catch that in your examination in chief.
A. It may or may not be considered to be put in as the very first ingredinet. It is the first ingredient in the melting in which it is put.
Q. Tell us what you said on that point.
A. That was the idea I intended to convey. For facility of manufacture we manufacture one melting and let it go into the cooling tank first. Then in either the second or third melting the caffeine is incorporated.
Q. You have first, as I understand you, this kettle which sets in the corner of the upper room?
A. Yes, sir.
Q. What is the first ingredient that goes into the kettle?
A. When we first commenced to manufacture Coca-Cola —
Q. (Interrupting.) I am not talking about that.
A. For that tank or any tank the first thing that goes in is —

Q. (Interrupting.) I am referring to the time of the seizure. Was that the process of manufacture that took place when the seizure took place?

A. Yes, sir. The first thing that went in was the water.

Q. After the water was put in what was done?

A. It was left in there until the melting was ready to be made.

Q. Are there four different receptacles?

A. No, sir; one kettle but there are four different meltings necessary to manufacture one tank of Coca-Cola.

Q. I understand that.

A. I did not know it.

A. The water goes in first?

A. Yes, sir.

Q. Then wh[illegible]?

A. The sugar.

Q. That is conveyed by the negro who stands on the platform?

A. Yes, sir.

Q. Then what comes in next?

A. Caramel coloring.

Q. That is conducted or brought from where?

A. From the barrel contiguous to the platform.

Q. After that is put in, then what follows?

A. The kettle is dumped into the melting tank; that is, it is first melted. I have described the first melting.

Q. That is then brought to a boiling point?

A. No, sir.

Q. What do you do?

A. We raise the temperature sufficient to melt the sugar.

Q. Then run it down into the cooling tank?

A. Yes, sir.

Q. Then what follows?

A. Then we proceed to manufacture the second melting.

Q. What is that?

A. It consists of running a certain quantity of water into the kettle and bringing that to a boiling point, and bringing in the requisite amount of caffeine and dissolving it in the water and on that is put the sugar for that kettle, and following that the coloring matter, and following that, the kettle is filled to its capacity with water, and then that is brought to a sufficinet temperature to melt the sugar, and then that is dumped into the first or rather into the tank with the first kettle.

Q. You do not put any caffeine in the first kettle?

A. No, sir.

Q. That is put in the second?

A. In the second or third, according to convenience for handling of the specific amount. It just happens on whether we are ready to put the caffeine in.

Q. Then the third kettle?

A. That is identical with the first, and the fourth is identical with the first.

Q. The only difference in the manufacture of the four kettles is that in some one of the intermediate kettles, between the first and fourth, you put in the caffeine?

A. That is the idea.

Q. Where is that caffeine brought from when it is put into this kettle?

A. Brought from the so-called laboratory.

Q. What kind of a receptacle was it brought in in 1909?

A. Depending on the shape and source of the caffeine. If we get it from the St. Louis house we use what we call the advertising matter box which is a box that we use for packing advertising matter, a tongued-and-grooved and dove-tailed box, which makes it tight so that the caffeine won't drop out, and the caffeine is weighed from the drums. It comes from St. Louis in large 200 pound drums. The proper amount is weighed out. If we use the Maywood article that comes in two sizes of cans, 20 and 10 pounds. If we make a tank of fountain goods, we verify the weight of the cans and we take a 20-pound can and then we take a 10-pound can and remove from it two pounds and take the remainder of the ten pounds and the whole of the twenty pounds and put it in the syrup.

Q. You put in the contents of the two cans?

A. Yes, sir. In the event that we have no 20-pound cans we use 10-pound cans, two of them instead of one 20-pound.

And the negro would convey it from the laboratory down to the kettle and dump it in?

A. Yes, sir; into the boiling water.

Q. Now, if I understand you, you never analyzed Merchandise No. 5?

A. Never.

Q. You mean to say you don't know what is in Merchandise No. 5?

A. Except as I say that the Schaeffer Alkaloid Works manufactured it.

Q. What was the date of your visit to the Schaeffer Alkaloid Works?

A. July, 1908.

Q. There you merely saw the coca and some other constituents, or supposed constituents, of it undergoing a process of treatment?

A. I saw coca leaves and kola nuts assembled. I was

there the entire day and I saw them assembled in the proper quantities according to Doctor Schaeffer's rule.

Q. That is merely according to what somebody else said?

A. I saw it carried through the laboratory by Doctor Schaeffer.

Q. When you say "proper quantities according to Doctor Schaeffer," you mean what he said to you?

A. Yes, sir.

Mr. Miller: We move to exclude that testimony.

The Court: The motion is sustained and that part of the answer is excluded.

BY MR. MILLER:

Q. Then when you have stated that you went to Dr. Schaeffer's factory and made an inspection, you merely were conducted through there by him or someone else and you saw what you term coca leaves under treatment and kola nuts assembled and being percolated with some kind of liquid substance?

A. Yes, sir; coca leaves and kola nuts.

Q. That is all you know of Merchandise No. 5 and its ingredients except what may have been told you?

A. When it comes into the factory I test it to see that it is as it is oridinarily.

Q. Now, in detail tell what those tests are.

A. The tests are not done by me directly except in so far as I am in charge of it directly.

Q. I want to know the part that you were personally in charge of and can tell about.

A. I take the specific gravity of it.

Q. What is that?

A. A little over six; I think it is a little over six.

Q. What do you mean by "six"?

A. It weighs 6.8 pounds to the gallon.

Q. You can weigh it without taking the specific gravity, can't you? I ask you for the specific gravity, if you are prepared to give that.

A. The only test that I employed of my own personal knowledge — we have a chemist who finally passes on it. All I know of my own personal knowledge is that there is no fermentation process going on in it which would be indicated if they had not sufficient quantity of alcohol in.

Q. All you profess to know is whether or not it has the same general appearance?

A. Yes, sir.

Q. To the naked eye, as Merchandise No. 5 that you ordinarily use?

A. Yes, sir.

Q. But whether or not you could detect whether there is an increase or diminution of alcohol ——

A. That is manifest by the absence of fermentation process.

Q. Those are the two processes, one by looking at it?

A. And by the taste.

Q. And by the taste you determine whether there is an increase or diminution of alcohol?

A. No, sir; I don't as to whether there is an increase or diminution of alcohol.

Q. I thought you said that.

A. No, sir. The diminution of alcohol would cause fermentation process and if the fermentation is absent I know it has a sufficient amount of alcohol to preserve it.

Q. That is the object of your tasting it, to ascertain whether ——

A. It has fermented.

Q. And if there is sufficient alcohol in it it would not be fermented?

A. No, sir.

Q. Have you ever tasted any that was fermented?

A. Yes, sir.

Q. Sometimes you get it when it is fermented?

A. Not now, and did not when this case was on.

Q. You did get it from Doctor Schaeffer?

A. That was long years ago.

Q. You got it when there was not sufficient alcohol used to preserve it and fermentation had taken place?

A. The packages were not air-tight, as he explained to me. I don't know anything about it.

Q. Did you in that case attribute the fermentation to the fact that air came in contact with it or that there was not sufficient alcohol?

A. I did not know to what to attribute it.

Q. You are not prepared to say if fermentation takes place what it is attributable to?

A. No, sir; I only know what he told me.

Q. So that the only test you could make about it is to see whether it has fermented by tasting it?

A. Yes, sir.

Q. But what causes the fermentation you don't know?

A. Except what he told me.

Q. And also the general appearance to the naked eye?

A. That is right; yes, sir.

Q. Those are the only two tests you made?

A. Yes, sir.

Q. Did you ever make any experimentations to ascertain whether or not Merchandise No. 5 could be produced

from certain chemicals and coloring substances?

A. I never did.

Q. You are not prepared to say whether that could be done or not?

A. No, sir.

Mr. Miller: In so far as this witness has made any statement as to the contents of No. 5 I object because he has on cross-examination stated that he does not know what is in it.

Mr. Sizer: He did not undertake to say in the examination in chief. He said he did not know anything about it.

The Court: He has stated that he saw coca leaves and kola nuts being subjected to certain processes. That is the only statement he has made in reference to that.

Mr. Miller: In Doctor Schaeffer's factory.

The Court: Yes, sir; and that is the only statement I recall.

Mr. Miller: I think he said they were used in making Merchandise No. 5. He did say, I think that he saw them—

The Court: Yes, he did say that he saw them used in making Merchandise No. 5 in that factory.

Mr. Miller: My point is that his statement to that effect should be excluded because all he says is that he saw them undergoing certain processes, and I asked him if that was all he knew and he said except what Dr. Schaeffer told him.

The Court: I think the objection is well taken. He says he saw them undergoing the processes but as to the making of Merchandise No. 5 that was entirely hearsay from Doctor Schaeffer and so I exclude that. Now, understand, gentlemen of the jury, it is admitted that the witness said he saw coca leaves and kola nuts being subjected to certain processes but the purposes for which they were being subjected is what I exclude.

Q. I will get you to state if it is not true that Dr. Schaeffer in his alkaloid work makes a great deal of cocaine, and a great many other alkaloids.

A. I don't know.

Mr. Sizer: I object to that.

The Court: The witness says he does not know.

BY MR. MILLER:

Q. As a pharmacist, are you prepared to say if he does make other alkaloids, and if he produces cocaine, that it is necessary to use coca in order to do it?

The Court: The witness says he does not know.

BY MR. MILLER:

Q. Now then, what do you know about the coca or coca

leaf?

A. I know very little about it.

Q. Did you ever see any of it growing?

A. No, sir.

Q. Did you ever see any of it green?

A. No, sir.

Q. Did you ever see any of it while it was in process of drying?

A. No, sir.

Q. Then, do you know anything about coca or coca leaf?

A. I expect so.

Q. Well, tell me.

A. I have seen a great deal of coca leaf.

Q. And where did you see that?

A. In the manufacture of Merchandise No. 5, I received a great deal of coca leaf in the dry state.

Q. In the dry state?

A. Yes, sir.

Q. And you made your purchases from where?

A. From various sources, the Parke-Davis Company, largely, and other importers.

Q. Do you know what that substance was, will you give us the name of it that corroded the pipe it was introduced into?

A. Phosphoric acid.

Q. Which of these tanks was it that was not covered over in your factory?

A. The cooling tanks were not covered.

Q. How many of these cooling tanks was there?

A. Ten.

Q. And each of these tanks held approximately what proportion of the mixture?

A. Their capacity was fifteen hundred gallons, but we only put twelve hundred gallons in them.

Q. And by cheese cloth, you mean one of these sort of mosquito affairs, don't you, that has just places in it through which water can readily pass and catch some of the sediment?

A. No, sir.

Q. Well, what do you mean by cheese cloth?

A. I think it is sufficiently well known to know what it is — I go into a dry goods store and ask for cheese cloth, it is more or less loosely woven close mesh of soft goods.

A. Loosely woven close mesh?

A. Yes, sir.

Q. And if you thought you got the sediment out of this Coca-Cola, why is it that your directions require that a man should, who purchases it ought to strain it after he gets it?

A. To be able to catch any of these things that might have been in the keg, not known to us.

Q. Then you thought your methods were not sufficinet to keep out these substances which may be found in there which were foreign to the mixture, and therefore you asked the men to whom you sent it to strain it himself?

A. No, that is not the reason we did it. Soda fountain men have always done it before we went into business.

Q. Then you don't direct them to do it because they have always been doing it?

A. No, sir, we don't direct any soda fountain men to do it at all.

Q. You do issue directions, you stated, to have it re-strained before it went to the consumer?

A. No, sir, that was to the bottler.

Q. Why did you direct them then to re-strain it?

A. Why, simply to exercise all the precaution we possibly could, to keep from clogging up their machinery and getting anything ——

Q. (Interrupting.) Then you were interested in protecting their machinery?

A. Yes, sir.

Q. And that is the reason of it?

A. Yes, sir; they get their machines clogged up and they will not get a full ounce into a bottle.

Q. Well, what has the machinery getting clogged up to do ——

A. (Interrupting.) Possibly there would be a piece of sawdust in it, that is hard to get out of the keg.

Q. And you thought that machinery might get clogged and therefore, in the interests of their machinery, you directed it is strained?

A. No, sir; not necessarily in the interest of their machinery, but in the interest of getting a full quantity into a bottle, and to save any foreign substance or sawdust into the bottles.

Q. And then, you did it in the interests of your cumpany?

A. No — they might get several things — they would not get a full ounce.

Q. Well, that would not be to your financial loss, that would be up to your financial loss, if they did not give it that would be up to your financial loss, if they did not give it that way?

A. Well, we are not purely in business from a financial standpoint.

Q. You are not purely in business from a financial standpoint?

A. No, sir.

Q. Well, you are not in business from a charitable standpoint?

A. No, sir, but we want people to get what they ask for, and when they ask for it, if they don't get what they ask for ——

Q. (Interrupting.) And then you want them to get what they ask for?

A. Yes, sir; you can create a demand for goods if they are properly supplied.

Q. Now, about James Gaston, was he a negro or a white man?

A. A negro.

Q. What was he engaged in or doing, on October 18th, 1909?

A. He was a so-called cook.

Q. How was he dressed that day?

A. I don't have any definite recollection as to how he was dressed that day, but he was likely dressed as he ordinarily dressed.

Q. Well, how was he dressed the following day?

A. I don't know.

Q. How about the next day?

A. Those answers will have to apply to all those questions—

Q. And what you have said about the dress was as you frequently saw him going in the factory?

A. Not as I frequently saw, but as I ordinarily saw him?

A. As you ordinarily saw him?

A. Yes, sir.

Q. And as you ordinarily saw him, you did not see him chew tobacco?

A. No, I could swear positively that I never saw him chew.

Q. You never saw him chew?

A. No, sir; I did not.

Q. You never saw me chew?

A. I have not seen you as much as I did him, I saw him every day.

Q. This was a coal, the thing you used to scoop the sugar up with, that was sort of a spade or shoval usually used to shovel up coal?

A. It might have been.

Q. That was the kind of article it was?

A. Yes, sir; it was manufactured by the people who manufacture scoops — there would be a whole lot of the sugar that would be hard to get out of the barrel, you would

have to shovel it out of the barrel.

Q. You used it with both hands?

A. Yes, sir.

Q. Often handled it that way?

A. Yes, sir.

Q. It is large metal scoop?

A. Yes, sir.

Q. It is true that this water closet opened into the room where you manufacture this compound?

A. You could not get into it from the factory if it had not.

Q. I want to know if it didn't open into it?

A. Yes, sir; the door opened into it.

Q. And you have not shown that in your drawing on the black board?

A. No, sir; I was asked to show a drawing of the manufacturing of Coca-Cola, and the closet didn't enter into that at all.

Q. You say you are unable to account for these remnants of animal life found in this mixture?

A. Yes, sir; absolutely. I have my ideas, but I am unable to say.

Q. Well, you know insect life frequents closets, don't you?

A. No, sir.

Q. You don't know it?

A. No, sir; not bees.

Q. You don't know that as a matter of common knowledge?

A. No, sir; I never saw a bee in a closet in my life.

Q. As to the sugar, do they not haunt sugar?

A. Yes, sir.

Q. Do you know personally how often drinks were served or ordinarily served in this section of the country in 1909, Coca-Cola syrup?

A. You mean Coca-Cola syrup?

Q. Well, Coca-Cola syrup, how it was ordinarily served at the fountains, in what proportion, in Chattanooga, 1909?

A. I don't know anything about that, this was my first visit here, just a few days ago.

Q. Well, you do know it to be a fact that the soda fountain trade ordinarily does not use the glass that you have exhibited here, which you claim that the Coca-Cola Company furnish, do you?

A. If they don't use it, I am unable to know what they do with it; we send a great many out.

Q. Well, don't you know as a matter of fact, Mr. Candler, that great many purchases are made of Coca-Cola by a

great many stores in this section that do not buy or use the fountain glass, or that is, the glass your company puts out?

A. I don't know as to that.

Q. Do you know whether it is or is not a fact?

A. No, sir, I don't, because we sell, as I say, a great many of them, and they are bound to be used somewhere.

Q. Of course, otherwise you would not manufacture them.

A. No, sir.

Q. But you don't know to what extent they are used?

A. No, sir; except they are used and we sell them. Very likely soda fountains use them for other purposes.

Q. It is very likely that they use other glasses that are not graduated also?

A. Quite likely.

Q. You state you went in great haste to the basement on being advised that Dr. Kebler, was in your factory. Why did you exercise such great haste in getting down into that basement, Mr. Candler?

A. Well, that was the most important thing to be done or attended to at that time, as I considered it.

Q. Why did you consider it so ultra-important because Dr. Kebler, a pure-food inspector was there, and be in such a hurry to get into the basement?

A. I wanted to give him such assistance as he needed, to intelligently inspect the plant.

Q. You went without taking off your coat and hat — you made a dash into the basement?

A. Yes, sir; I went.

Q. You went down there to assist Dr. Kebler?

A. Yes, sir; to give him such assistance as a stranger necessarily needs in a strange place.

Q. Well, Dr. Kebler was not a stranger in that factory?

A. He said he was quite an extensive traveler, and it is very hard to remember all these factories—and I know from the Doctor's testimony that he didn't remember ours very well.

Q. You were afraid he might get lost?

A. No, sir; I was afraid he would want to know something and there would be nobody who could answer but me.

Q. You therefore went in great haste without taking off your hat down into the factory to find Dr. Kebler?

A. Yes, sir.

Q. And that was your only object?

A. I wanted to be there while he was there so he could ask such questions as he wanted to.

Q. How high is that stringer you talk about, that you

say Dr. Kebler was on, from the floor, from the basement floor?

A. I should judge about nine feet.

Q. And now, what is the distance from the basement floor to the bottom of the tank?

A. Why, nine feet, I think, in addition to the thickness of the stringer, which is about two inches.

Q. Then it would be about twelve inches from the basement floor up to the end of what you term the stringer?

A. Yes, sir; that is right.

Q. What do you mean by the term "stringer"?

A. That is the foundation girder, or the girder itself, the component parts making up the girder, on which the tank rests.

Q. That is the part of the form surrounding the tank which holds it in position?

A. Yes, sir; extends twelve to fifteen inches from the tank so as to accommodate the expansion rod that goes up.

Q. Well, there was no room there for Dr. Kebler to lie down on that place?

A. No sir.

Q. You didn't find him lying down on that place, but he was looking over into the kettle?

A. No, sir.

Q. And that is the only way to see inside of that tank—I should have said tank in the previous question — the only way would have been to have gotten on the end of the stringer to make an inspection so as to see inside of the tank?

A. Yes, sir.

Q. You were not alarmed or exercised about that?

A. No, sir; I was not alarmed, but I was necessarily surprised to find him up in that part, and nobody knew he was there.

Q. Is that not the way to make an inspection?

A. I submit he ought to have had me when he made his inspection.

Q. Well, you say you went down there to help him make it?

A. Yes, sir.

Q. Your purpose was to go down there and help him?

A. Yes, sir.

Q. And he was doing that when you helped him—

A. (Interrupting.) Yes, sir; I think it is courtesy.

Q. You think it is purely a breach of courtesy, as you understand it?

A. Yes, sir; purely so.

Q. Don't you know that the only way to make a proper

inspection is not to give the people notice before you go there to inspect, because they will always clean up?

Mr. Sizer: I object to that.

The Court: Yes, the objection is sustained, it is a question to be answered by the jury so far as it is material.

BY MR. SIZER:

Q. What is the date of your sending of that letter to Doctor Caspari at St. Louis?

A. I will have to look it up. That was the latter part of January, 1910.

Q. What was that?

A. That I sent to him—the two bottles.

Q. The two bottles of what?

A. I will tell you. One bottle consisted of Coca-Cola syrup, and one bottle consisted of all the ingredients of Coca-Cola syrup with Merchandise No. 5 left out.

Q. And where did you get that from?

A. I made it.

Q. Did you get it out of this mixture that was seized?

A. No, sir.

Q. Well, from what receptacle did you draw it?

A. From the ordinary receptacle in the place there—I made the bottle containing the ingredients without the Merchandise No. 5.

Q. Where did you get these bottles to start with?

A. I don't know; the ordinary channel.

Q. Do you recall where you got that bottle?

A. I can't see that amounts to anything.

Q. Well, I say, do you recall where you got them?

A. No, sir; I do not.

Q. Do you recall who it was that drew the Coca-Cola syrup and brought it to you?

A. I did that myself.

Q. From what receptacle did you take it?

A. From the tank in which we manufactured it.

Q. And that was done on the day it was sent out?

A. Yes, sir.

Q. And that is—you mean, you made it up at that time?

A. Yes, sir.

Q. Now then, what was this other ingredient you sent to him?

A. I sent him a bottle containing all the ingredients of Coca-Cola syrup except Merchandise No. 5.

Q. This first one you added the Merchandise No. 5 to?

A. No, sir; It was made in the regular manufacture.

Q. And in the second instance?

A. I made that specially.

Q. You don't know where you got that bottle?
A. No, sir.
Q. Did you draw that personally?
A. No, sir; I manufactured it in the laboratory.
Q. You don't know who brought that mixture to you to be sent out?
A. No, sir; no one brought it to me, I made it myself.
Q. You made that up in your laboratory?
A. Yes, sir.
Q. And you included in that what ingredients?
A. All of the ingredients necessary to make Coca-Cola syrup except Merchandise No. 5.
Q. What are they, in what proportion did you mix them?
A. Well, I mixed them in the proportion as per our formula.
Q. What is that formula?
Mr. Sizer: I object to that.
The Court: The witness has said he sent some ——
Mr. Sizer: He says he sent one containing all the ingredients of the Coca-Cola syrup in the proportion in which they are found in the syrup except Merchandise No. 5.
The Court: Well, there is no way to find out what they are without his stating ——
The Witness: I will tell you what they are but not how much.
Mr. Sizer: The Act provides — there is nothing in the Act to require any manufacturer of a proprietary food not containing any unwholesome ingredient to disclose his for mula ——
The Court: I will exclude the evidence as to the bottles ——
The Witness: I can tell you, your Honor.
The Court: Well, it is entirely a matter for the witness — we can't have evidence of analyses of bottles unless we know what is in them.
Mr. Sizer: The analyses will show what is in the bottles. We submit it is competent to show by this witness that he sent bottles containing the ingredients in the Coca-Cola syrup except Merchandise No. 5, and it is for the analycist to show what was in it, show by the result ——
The Court: The analysis would just be an analysis, and does not show just what he sent — I do not see the materiality of it either way ——
Mr. Sizer: It may be material in some aspects of the case.
Mr. Miller: Our position is this: This man says he made up a certain mixture and sent to Doctor Caspari, I

do not know what chemical changes it undergoes by being brought into combination, with other things, and unless this question is withdrawn I ask this witness to answer——

The Court: I tell him not to answer, I reserve the question until they come to introduce the witness to testify as to the analyses of the bottles ——

Mr. Sizer: Mr. Candler says he has no objection to making a statement — I don't care to interpose an objection except for protection of the formula ——

The Court: We will take a twenty-minute recess.

(Thereupon the Court, at 12 o'clock noon, adjourned until 2 o'clock P. M. of the same day.)

AFTER RECESS.

(Thereupon, court met pursuant to adjournment for recess, at 12.20 o'clock.)

CLAIMANT'S EVIDENCE CONTINUED.

HOWARD CANDLER,

resumed the stand for further cross-examination and testified as follows:

Mr. Sizer: We want to say we withdraw any objection to Mr. Candler stating exactly what he put in the bottles that he sent to Dr. Caspari, in which he stated he put all the ingredients of Coca-Cola except Merchandise No. 5.

The Court: He may state.

Mr. Miller: Or he may give it to our chemist, or he may make the statement publicly.

Mr. Sizer: He will furnish it.

Mr. Hirsch: We suggest that he gives you the formula, give it to your chemist.

Mr. Miller: We are perfectly willing to that.

The Court: Then, that may be done.

BY MR. MILLER:

Q. Now in connection with that transmission to Dr. Caspari, did you advise him of the contents of this mixture?

A. No, sir, except stating that the bottles were labeled No. 1 and No. 2.

Q. How did you transmit these bottles?

A. Either by registered mail or express; I have forgotten now which. It was largely an incidental matter.

Q. How was that?

A. It was largely an incidental matter. Mr. Hirsch called me up one morning and told me to fix up that compound and send them to Dr. Caspari and Mallett.

Q. Now, in each instance did you—

A. (Interrupting) I told Mr. Hirsch what the contents of the bottles were; I gave him the key to the bottles.

Q. Now, did you communicate with Drs. Caspari and Mallett in that connection?

A. I did not communicate with Dr. Caspari; I am rather of the opinion that I wrote to Dr. Mallett in answer to an interrogation from him relative to them; I am not sure on that however.

Q. Well, if you did, you kept a copy of the correspondence, did you?

A. Yes sir.

Q. Well, would you oblige us by filing it?

A. I haven't it here; it is in the files in the Atlanta office, I suppose.

Q. Well, you can get that before the trial closes?

A. I can't tell you; you know how those things are —

Mr. Hirsch: Dr. Mallett has his entire file with him and I understand Dr. Caspari has, and they will be given to you if they can possibly be located.

Mr. Miller: That will be all right.

BY MR. MILLER:

Q. You did advise Mr. Hirsch of what you sent?

A. Yes, I gave him a key to the solution—

Q. Now you say that Mr. Lynch bought merchandise No. 5?

A. Yes, that is my recollection.

Q. And, as No. 5, merchandise No. 5 was prepared prior to the time when you bought it from the Schaeffer Alkaloid Works you used Coca leaves you say?

A. Yes.

Q. Can you tell us the process which was undertaken and what the result was after the treating process?

A. I understood this examination was as to the goods that were seized?

Q. Sir?

A. I don't know that that has anything to do with the case; I suppose this was as to the goods seized in 1909.

Mr. Sizer: If you know anything about that process that was being used—

The Witness: Yes, I knew about it.

BY MR. MILLER:

Q. Tell us what was done? What you term as the key to it?

A. We buy the whole leaf in bales and grind it in a mill—we also buy cola nuts in bags and mix them—I have forgotten the proportions, it has been so long, in a

perculator—first mixed up in what we call a wooden bog, wetted them down together with a certain quantity—just a crude box for packing and added a certain quantity of phosphate of lime and after they were thoroughly wetted pack them in the percurator, so called magma—and let them stand possibly twenty-four hours, and then we put on them dilute alcohol, to which the white or a white California wine had been added in some proportion, the exact proportion I forget, and let it run out to a stated quantity, in other words a reservoir under them, and when the quantity that we have figured on making was run out we would stop the process.

Q. Are you prepared to state the contents of Merchandise No. 5 as you prepared it, or the ingredients of Merchandise No. 5; give us what they were, the chemical analysis as to—

A. (Interrupting) I made no chemical analysis of any of them.

Q. You are not prepared to state what was in Merchandise No. 5?

A. Except as I have stated to you.

Q. That is all—

A. (Interrupting) I know nothing as to results.

Q. Know nothing as to results?

A. No, sir.

Q. Now, when was it that you ceased to manufacture merchandise No. 5?

A. I don't remember the exact date.

Q. Well, approximately, Mr. Candler?

A. I rather think probably in 1900 or 1899 or 1901.

The Court: A witness whose deposition was taken by the Government shows the exact date.

Mr. Miller: What witness is that?

The Court: As to when Schaeffer began making it.

Mr. Miller: That deposition has not been read.

The Court: Or the deposition of someone.

Mr. Hirsch: Dubois stated it, didn't he?

Mr. Miller: I think not.

The Court: You took the deposition of someone.

Mr. Miller: I read the deposition of DuBois who testified that he furnished the Coca-Cola Company with caffeine and Merchandise No. 5.

The Court: He didn't show the date then.

Mr. Miller: I do not recall it.

The Court: Well, you may proceed.

BY MR. MILLER:

Q. You think you did not prepare any of this merchan-

dise No. 5, and that you ceased to manufacture it after 1899 or 1900, is that correct?

A. Or 1901; I don't remember but along in that period.

Q. And as I caught your statement you did not examine or make a chemical analysis, and you don't know what its contents were except you saw the leaves being treated during that time?

A. That is all; I treated the leaves myself, as I described.

Q. You don't know whether the leaves as treated by you is the same way they are treated, if they are treated at the present time?

A. Why no, they are not treated as was pointed out to me by Dr. Schaeffer the way he treats them. The Schaeffer method appeared to be an improvement over our method.

Q. So, of all this product that was seized in the present case—was any of it sent to either Dr. Caspari or Mallet?

A. Not by me.

Q. And was not that that was made up at that time that was sent to either of them?

A. I don't know; that was not the stuff I sent to them you understand.

Q. So far as you know there was none of that sent to them?

A. No sir.

Q. Now, you introduce certain pamphlets or price lists here, and I will ask you to refer to three of them, and state if you find any coca leaves listed in there, and if not under what is it listed?

A. I see leaves in this American Druggist—two kinds of coca leaves, under the general heading of leaves.

Q. And it is listed as "coca" is it?

A. No, that word "coca" there is simply to save time or space in the literature, of putting down leaves every time.

Q. Now, turn to the next one?

A. There is cola nuts, and the same comment applies to this; simply the putting of the word "leaves" at the top of the classification and underneath these are all kinds of leaves amongst them, there is the sage ——

Q. (Interrupting) And it is listed as "coca"?

A. No, as coca leaves.

Q. No "leaves" follow it?

A. But it is under the classification of "leaves". The same comment applies to the Practical Druggist under the classification of leaves.

Q. Now, then I will ask you as a pharmacist, and you say you are a pharmacist—

A. (Interrupting) No, sir, I didn't say I was.

Q. How is that?

A. I helped a chemist or pharmacist in drug stores.

Q. And you are not prepared to say whether or not coca leaf and coca are used interchangeably?

A. Except in business,—not having read—

Q. (Interrupting) I am speaking from your personal experience and observation?

A. I have never heard of them under any other term than coca leaves and coca—

Q. Are you able to state from your experience?

A. As to what point?

Q. As to whether or not coca and coca leaves are used indiscriminately?

A. Not from my knowledge is it used indiscriminately.

Q. To what does "coca" refer?

A. Coca leaves.

Q. Well, that is what I thought—when you say "coca" you mean "coca leaf"?

A. Yes, that is the way I understand it.

Q. And the active principle or ingredient of that is cocaine?

A. I don't know, I have only read of it.

Q. Did you advise Dr. Emerson or Dr. Wesener when you transmitted these bottles to them what they contained?

A. I did not advise Dr. Wesener, but I advised Dr. Emerson.

Q. Have you a copy of that letter?

A. Dr. Emerson has it.

Mr. Hirsch: Dr. Emerson has it here.

BY MR. MILLER:

Q. Do you know the process for making Merchandise No. 5 as it was made in your factory?

A. I think I answered that question.

Q. Well, did you or not answer that, or did you say you didn't know what it was?

A. I didn't know what the result was.

Q. Did you employ a chemist at that time?

A. No sir.

Q. You did not employ any chemist?

A. No sir, not then.

Q. And you didn't have any chemical analysis made at that time?

A. No sir.

Q. Did you ever have a chemical analysis made of Merchandise No. 5 as it was manufactured in your factory Mr. Candler?

A. Not of my knowledge. I think there were numbers made though; I see results of them at various places.

Q. Can you give the proportion of Merchandise No. 5 which goes into the batch of the mixture as it was made up in October 1909?

A. Yes sir.

Q. What was it?

A. We used 15 gallons of Merchandise No. 5 to 1250 gallons of the finished product.

Q. Are you or not able to say whether or not cocaine was extracted from the leaves when Merchandise No. 5 was made up in your factory?

A. It was not our intention to have cocaine in it.

Q. Sir?

A. We were not trying to get cocaine out of the leaves.

Q. And that continued up until probably as late as 1901?

A. Yes, that is my indefinite information, sir, or recollection.

Mr. Miller: I believe we have made an agreement about the point that this witness shall give the ingredients of the bottles that he sent to Dr. Caspari to one of our chemists?

Mr. Hirsch: Yes.

RE-EXAMINATION

BY MR. SIZER:

Q. You were not trying to get cocaine out of the coca leaves, you mean you were not trying to use cocaine in the mixture?

Mr. Miller: I object to that.

The Court: Well the answer was rather ambiguous—let him answer that?

The Witness: I say when we made Merchandise No. 5 we had no intention of getting cocaine out of the coca leaves.

BY THE COURT:

Q. You mean in producing it or eliminating it?

A. I meant of producing it.

BY MR. SIZER:

Q. Do you know whether or not the purpose of the treatment given the coca leave was to take the cocaine out of it before it was used in Merchandise No. 5?

A. I don't know as to that.

Q. You say you are not a chemist?

A. No sir.

Q. You did not have a chemist connected with the factory at that time?

A. No sir.

Q. Was your father a chemist?

A. I don't think so; I don't think he would be constituted a chemist; he was a pharmacist.

Q. How was that?

A. He was a pharmacist.

Q. And he compounded his own mixtures at that time?

A. Yes sir.

Q. Now, why was it that you made what you called four meltings of this syrup at this factory.

A. It simply saved the size of a kettle; we could have manufactured the entire product if we had had a 1200 gallon kettle and it saved the installation of four different kettles.

Q. Then, you didn't have large enough kettle to make 1250 gallons in?

A. That is exactly right.

Q. What is the difference between the amount of the caffeine in a mixing tank filled with the bottler's syrup and one filled with the fountain syrup?

A. The bottlers syrup had twenty five pounds to 1250 gallons and the fountain syrup had twenty eight pounds to 1250 gallons.

Q. Now, about that water closet, Mr. Candler; did you ever know of a water closet without a door to it?

A. No sir.

Mr. Miller: I object to that.

The Court: The objection is sustained.

Mr. Miller: He is not qualified as an expert on sanitary arrangements, as I understand it.

Mr. Sizer: I believe that is all. No, I will ask him another question.

BY MR. SIZER:

Q. How are those operatives dressed?

A. Well, in overalls.

Q. Do they put those overalls on when they come in from the street and before they go to work?

BY MR. SIZER:

Q. I will ask you one more question — about that stirring, the stirring of the syrup in that kettle on the first floor there, could you say how it was stirred?

A. Yes, sir, that kettle had in it a stirring apparatus (indicating on blackboard) which was built something like that and attached at the bottom of a shaft, that shaft was attached at the top to a cog wheel, and that was conneced on the counter shaft ——

Q. (Interrupting) Please stand around so the jury can see it?

A. All right. That was connected, the counter shaft attached to it, which was or had on it a loose pulley.

Q. With blades in it?

A. Yes, sir, two blades so as to facilitate the solution of sugar.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. If I understand you, you did not know prior to 1901 whether the cocaine was extracted from the coca leaves or not?

A. No, sir.

Q. You do not know whether coca leaves contain cocaine or not?

A. No, not of my own knowledge.

Q. Now, as to the mixing. You heard the testimony of Dr. Fuller, didn't you, given in evidence here?

A. Yes. sir.

Q. As to the three analyses that were made?

A. Yes, sir.

Q. Now, how do you account for the fact, if you can account for it, that there was an analyses that ranges from nine tenths of one grain of caffeine in one ounce of the mixture, in one of the portions, and varying from that up to one grain and approximately two fifths of a grain in another ounce, if you can account for that ——

Mr. Sizer: (Interrupting) The witness has not qualified as an expert on that.

Mr. Miller: I ask you if you can account for it — I do not pretend to say, your Honor, he cannot account for it, or that it cannot be accounted for, but I want to know if he knows of any method by which it can be accounted for ——

The Court: You may ask the witness this question, — assuming that it be a fact that different portions of the coca cola syrup contain on accurate analyses, varying amounts of caffeine, ask the witness — I mean in an ounce — ask him if he can account for that difference.

BY MR. MILLER:

Q. Now, assuming that three analyses were made of the seized goods, and one of them contained ——

The Court: (Interrupting) Without assuming there was any seizure or anything else — but assume there were three analyses that showed a difference.

BY MR. MILLER:

Q. Now, assuming that three analyses were made of that product, coca cola syrup, that one of them contained

9-10ths of a grain of caffeine per ounce, the other one as given by Dr. Fuller ——

The Court: (Interrupting) Without reference to any witness' testimony, assume there were three analyses — showing so much ——

BY MR. MILLER:

Q. Now, that one contained 9-10ths of a grain in an ounce of the syrup, and another one 1.19 per ounce, and the other percentage between the two that I have indicated, is there or not anything in your mixing process that would account for that variation in the percentage of caffeine and if so what is it to your knowledge?

A. There isn't anything that would account for that in our mixing process. Your own witness answered that question by stating — your own witnesses did — by stating that they used different methods, which could account for it.

Q. That was Doctor Emery?

A. Yes, sir.

Q. You refer to Dr. Emery?

A. Yes, sir, he testified he found a different result from Mr. Fuller.

The Court: I do not think this witness ought to be asked to pass on the accuracy of the analyses.

Mr. Miller: Then I move to strike out that portion of the answer because it is not responsive to what I asked the witness.

The Court: That may be done.

(Witness excused).

G. L. MITCHELL,

the next witness called upon behalf of the claimant and intervenor, Coca Cola Company, testified:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Where do you live?

A. Atlanta.

Q. What is your connection with the Coca Cola Company?

A. I am manager of the manufacturing department.

Q. And, did you occupy that same position in October, 1909?

A. Yes, sir.

Q. As manager is it your duty among other things to see that the premises are kept clean?

A. Yes, it is.

Q. How, are the premises cleaned in that factory?

A. Well, they are scrubbed with water and a hose —

We have mops and brooms to clean the factory with.

Q. You have water connection by which the water can be turned on through the house?

A. Yes, sir.

Mr. Miller: I object to that question, it is very suggestive.

The Court: Yes, you just state fully what you did in that respect.

BY MR. SIZER:

Q. How often is that done, how often were the manufacturing premises, those two floors, cleaned out?

A. Well, three or four times a week, or just as often as necessary.

Q. How often are the kettles and mixing tanks and other containers cleaned?

A. Well, a tank is hardly ever used a second time or the storage or mixing tank without being washed out.

Q. And the kettles or cooling tanks are they also cleaned periodically?

A. Yes, sir.

Q. Is it among your duties also to see that the operatives are dressed properly and take proper precautions to insure cleanliness?

A. It is.

A. Yes, sir.

Q. Do they have shoes that they wear only in the factory and do not wear on the outside?

A. Yes, sir.

Mr. Miller: These questions are very objectionable, your Honor ——

The Court: Yes, these questions are suggestive.

Mr. Sizer: I thought I might shorten it.

The Court: There is objection made to them, and I will exclude them.

Mr. Sizer: Does your Honor strike out these answers; if you do I will go over ——

The Court: No, I will not strike them out this time.

BY MR. SIZER:

Q. Do you know this negro Gaston?

A. Yes, sir.

Q. Who is termed the cook?

A. Yes, sir.

Q. How long has he been in the employ of your company?

A. Well, since I have been there, to my knowledge five or six years.

Q. Does he chew tobacco?

A. No, not that I know of.

Q. Did you ever see him around that kettle with nothing but an undershirt on?

A. No.

Q. What does he wear when he is up there?

A. Overalls and a jacket.

Q. On what part of his body — or first, I will ask you on the upper part of his body what does he wear?

A. A jacket.

Q. Do you know Mr. Asa G. Candler, president of the company?

A. Yes, sir.

Q. I want to ask you if he is or is not a man who uses profane language?

A. Why he is not.

Mr. Sizer: You may cross-examine.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Did you ever see President Candler get wrought up and get very much excited when he was confronted with a government inspector, Mr. Mitchell?

A. No, sir, I was not present.

Q. You were not present at that time?

A. No, sir.

Q. You don't know but what he might give vent to on occasions like that?

The Court: Well, he says he don't know.

BY MR. MILLER:

Q. All you mean is that in ordinary conversation he does not swear — that is all you profess to state, is it?

A. Well, from general knowledge of him for the last five years, I have never heard him.

Q. You never heard him swear?

A. No.

Q. You have gotten along very pleasantly with him?

A. Yes, sir.

Q. You are still in the employ of the Coca Cola Company?

A. Yes, sir.

Q. This negro Gaston you stated that that you didn't see chewing tobacco there?

A. No, sir.

Q. And from that you judge that he didn't chew?

A. Yes.

Q. That is the fact, is it?

A. Yes, sir.

Q. Now, do you know or do you recall the dates of October 18, 19, 20, 21 and 22, 1909, specifically, Mr. Mitchell?

A. Well, not only the date that Mr. Kebler and Mr. Lynch were there on one occasion, that is the only time I remember.

Q. Where were you on that occasion?

A. Well, I was there in the factory — I don't know exactly where.

Q. Well, do you recall what part of the factory you were in?

A. I think I was on the manufacturing floor there; on the ground floor.

Q. Do you recall what you were doing?

A. Why, I don't know at this time, no sir.

Q. Do you recall how long they stayed?

A. No, sir, I do not.

Q. All you know is that you just have a faint recollection of the fact that they were there about that time?

A. Yes, I remember when they came in or right after they came into the factory.

Q. That is the extent of your recollection?

A. I don't know how long they stayed there. Mr. Candler taken charge of them after they came in.

Q. And further than that you don't know?

A. No, sir.

Q. Do you keep any record of the cleanings or how often the floor is cleaned or anything of that sort to refresh your recollection by?

A. Why, no, sir, I only know it was done as often as necessary. It was cleaned at least three times a week.

Q. At least three times a week?

A. Yes, sir.

Q. And that was as often, in your opinion, as was necessary?

A. Yes, sir.

Q. That was as often as you washed it?

A. You couldn't use these storage tanks more than that in that time.

Q. Are you a practitioner of medicine?

A. No, sir.

Q. Or a bacteriologist or anything of that kind?

A. No, sir.

Q. And you simply cleaned them us as often as you thought they ought to be cleaned?

A. Yes, sir.

Q. What did you do in the cleaning of the stairway?

A. Why we could wash that like we did the other floor?

Q. What is "No. 5"?

A. No. 5 is an extract made from coca leaf and cola nut.

Q. Is that generally and popularly known as "Merchandise No. 5"?

A. No.

Q. What is Merchandise No. 5 as distinguished from No. 5?

A. It is called Merchandise No. 5.

Q. Then, what you referred to a moment ago as "No. 5" is the same as "Merchandise No. 5"?

A. Exactly.

Q. State whether or not samples of No. 5, or Merchandise No. 5, were furnished some months since by your manufacturing plant to the Bureau of Chemistry at Washington?

A. They were at various times, as I can recollect, asked for, samples of Merchandise No. 5, by the Bureau of Agriculture, as I understand, in Washington, and were supplied.

Q. State whether or not these samples of merchandise No. 5, furnished to the governmental authorities at Washington, were fair and average samples of such merchandise?

A. I regarded them as fair and average samples.

Q. Were they or not fair and average samples of that article known as Merchandise No. 5, as it has been produced by your plant and shipped to or for the Coca Cola Company for the past few years?

A. The samples were the same in quality as the shipments made to the Coca Cola Company.

Q. For how long have you been, or has your plant been manufacturing Merchandise No. 5 for the Coca Cola Company, of Atlanta, Ga.?

A. I could not give you the exact date; I think it is about eight years, seven or eight years, I couldn't give you the exact date, it is about seven or eight years, though.

Q. You say that product is manufactured from the coca leaf and the cola nut?

A. Yes.

Q. Where do you obtain the coca leaf from, that is used in that manufacture?

A. I buy the coca leaf which is used for the manufacture of No. 5 in South America.

Q. Is it or not a plant that grows in South America?

A. Yes.

Q. And where does the cola nut come from?

A. The cola nut I buy in the market in New York.

Q. And where is it produced or grown?

A. The cola nut grows in Africa, chiefly in Africa, and West India.

Q. When you receive the coca leaf which is used in this Merchandise No. 5 is it or not dried?

A. It is not especially dry, it is the coca leaf as it is shipped from South America to Europe and to America for the manufacture of cocaine.

Q. Is it or not what is termed dried?

A. The coca leaf in order to enable transportation across the ocean has to be dried or it would start fermentation. The coca leaf as it is used in South America for chewing purposes is in a more humid fresh state.

Q. Is the cola nut when you receive it for use in the manufacture of Merchandise No. 5 dried or not?

A. I use the cola nut as it is put on the market.

Q. Is that what would be termed as dry or otherwise?

A. I understand this nut has been dried, too, but whether it has been dried with artificial heat or air dried or dried in the sun, I couldn't tell you that. I think the nut has been dried to some extent to prevent fermentation, too.

Q. What is the basic or active principle of the coca leaf?

A. The coca leaf contains a number of organic bodies. Its commercial principal substance is cocaine. There are outside of cocaine extractive bodies in the coca leaf.

Q. As popularly used are coca and the coca leaf synonymous?

A. I might say yes.

Q. The chief or active principle in both as well as the commercial feature is cocaine?

A. The chief active principle is cocaine.

Q. State whether or not you are a manufacturer or producer of cocaine?

A. I am a manufacturer of cocaine.

Q. Under what name, corporate or otherwise, is your business conducted?

A. The corporation manufacturing alkaloids in Maywood of which I am president is the Schaeffer Alkaloid Works.

Q. And this corporation produces Merchandise No. 5 about which you have been interrogated?

A. Yes.

Q. Now, what is the basic or active principle of the cola nut? In the condition that you get it, I mean?

A. There is caffeine or glucoside of the caffeine in cola nut, extractive matter.

Q. What is the chief agent in the cola nut, I mean as

you get it?

A. Caffeine and extractive matter.

Q. What do you mean by extractive matter?

A. By extractive matter I mean a number of organic bodies which can be taken out from the cola nut by making an extraction with a solvent.

Q. After you have prepared the compound or extract or mixture known as Merchandise No. 5 for the Coca Cola Company, of Atlanta, Ga., what do you do with it?

A. I burn the residue up.

Q. I mean what do you do with the Merchandise No. 5?

A. Merchandise No. 5 I send to the Roessler & Hasslacher Chemical Company, New York.

Q. Does this Merchandise No. 5 as it is prepared by you include the kolinin as it comes from the cola nut, or as it is found in the cola nut?

A. I never analyzed it for kolinin.

Q. Is there any process of the manufacture that would extract such proportion of kolinin as inheres in the cola nut as it comes to you?

A. I never made investigations along that line.

Q. You have stated that this merchandise was sent to The Roessler & Hasslacher Chemical Co., in New York?

A. Yes.

Q. Are these shipments to New York by your plant under and pursuant to your contract with the Coca Cola Company?

A. Yes, sir.

Q. Do you know whether or not there is any addition to this Merchandise No. 5 after it leaves your plant or factory and prior to its receipt by the Coca Cola Company, or its branches?

A. There is no addition made.

Q. Then it is received by the Coca-Cola Company, in Atlanta, Georgia, or its branches, in the same condition, that is, containing the same substances and in the same proportions as it leaves your plant?

A. Absolutely the same.

Q. What is the function or office of the Roessler & Hasslacher Chemical Company here in New York?

A. They are agents for the Schaeffer Alkaloid Works regarding the sale of caffeine and Merchandise No. 5.

Q. Distributing agents?

A. Yes, sir.

Q. How are remittances or payments for this Merchandise No. 5 made to and received by your company as the manufacturer or producer thereof?

A. The Coca-Cola Company makes remittances for

goods received to the Roessler & Hasslacher Chemical Company, and the Roessler & Hasslacher Chemical Company remits the amount received less certain commission to the Schaeffer Alkaloid Works.

Q. Are you a stockholder in the Roessler & Hasslacher Chemical Company here in New York?

A. No sir.

Q. Now, state whether or not you supply any other substances to the Coca-Cola Company aside from Merchandise No. 5, and if so what?

A. I supply the Coca-Cola Company outside of Merchandise No. 5, caffeine.

Q. And how is that sent, direct or through the Roessler & Hasslacher Chemical Company here in New York?

A. It is done in the same way as the shipments of Merchandise No. 5 are made. The shipments are made by the Roessler & Hasslacher Chemical Company.

Q. And the remittances are made in the same way?

A. Yes sir, remittances are made and accepted in the same way.

Q. From what is the caffeine produced that you supply to the Coca-Cola Company in this way?

A. Caffeine is produced in Maywood chiefly from tea dust.

Q. And what do you mean by tea dust?

A. Tea dust is the siftings from the tea.

Q. And what is meant by the siftings from tea?

A. Tea siftings are small fragments of broken tea leaves which are sifted out in the tea producing countries to give the tea a uniform appearance and to bring it in a form which gives with the least effort a clear infusion. A certain percentage of tea dust will have the tendency to make a turbid infusion.

Q. This tea dust or siftings sells at a lower price than the better grade of the tea?

A. Yes.

Q. Where do you buy tea chiefly that is used in the manufacture of the caffeine that is supplied to the Coca-Cola Company.

A. I buy the tea chiefly in India and in Japan.

Q. In your manufacturing plant state whether or not you produce large quantities of cocaine and other drugs?

A. I produce in my factory large quantities of cocaine you mean?

Q. Yes, cocaine?

A. Cocaine and other drugs.

Q. You are one of the largest manufacturers in the world are you not?

A. I am one of the largest manufacturers in a few of the items in the world which I produce.

Q. And among these are caffeine and cocaine?

A. Yes, sir.

Q. Do you or not extract cocaine from the coca leaves that are used in the production of Merchandise No. 5?

A. Yes, I do.

Q. What is done with the cocaine thus extracted?

A. I purify it and sell it as cocaine.

Q. Is all of the caffeine that you sell to the Coca-Cola Company produced from the tea leaf?

A. Well, there is a certain percentage of the deliveries to the Coca-Cola Company produced from the coffee beans.

Q. Is there anything else used by your plant in the production of caffeine that is supplied to the Coca-Cola Company aside from the tea leaf and coffee bean?

A. No.

Q. Is this Merchandise No. 5 supplied by you exclusively to the Coca-Cola Company?

A. Yes.

Q. And what was the quantity supplied during the year 1909?

A. I have not the figures with me. They can be given to you by calling my office.

Q. Well, you furnish a statement of that quantity and file it as Exhibit No. 1 to this deposition?

A. Yes.

Q. You can send it to Mr. Edward Hacker, the reporter at Knoxville, Tennessee, to be attached to your deposition as Exhibit No. 1?

A. Yes, I will.

(The statement called for was furnished, and is hereto attached marked Exhibit No. 1, and is in the following words and figures, to-wit:

(This said deposition of Doctor L. Schaeffer was thereupon read in evidence as follows:)

"Schaeffer Alkaloid Works,
Maywood, New Jersey,
October 20, 1910.

Mr. E. Hacker,
Knoxville, Tenn.

Dear Sir:

As per your request, I beg to inform you that the deliveries of Merchandise No. 5 to the Coca-Cola Co., during 1909 amounted to 41,965 1-2 gallons.

I beg to remain,
Yours very truly,
DR. LOUIS SCHAEFFER."

EXAMINATION CONTINUED,
BY MR. MILLER:

Q. State whether or not the caffeine furnished by you to the Coca-Cola Company in the form of caffeine is subsequently added to the compound or mixture into which enters this Merchandise No. 5 in making up the coca cola syrup that is served and distributed by it to the various retailers throughout the country for serving drinks at fountains?

A. I understand the Coca-Cola Company has used it in their formula for the coca cola syrup.

Q. That is to say in addition to No. 5?

A. They use in that formula Merchandise No. 5.

Q. And in addition to that, the caffeine which you supply the Coca-Cola Company is also an added ingredient?

A. It is another constituent.

Mr. Miller: I object to any construction by him. We say it is added to this mixture.

Mr. Sizer: And we say it is not.

Mr. Miller: And we have proved it.

Mr. Sizer: You have not proved anything of the kind.

Mr. Miller: He says it is a constituent according to his information.

Mr. Sizer: He does not say that.

Mr. Miller. I understood that.

Mr. Sizer: The question is, that is to say, in addition to No. 5, and the answer is they use it in that formula, Merchandise No. 5. (Reading:)

"Q. And enters into the syrup?

A. Into the formula of the syrup.

Q. Is this caffeine that you furnish to the Coca-Cola Company and that has been furnished for a number of years past, by your plant pure caffeine?

A. Yes, sir.

Q. For how many years have you been supplying the Coca-Cola Company with caffeine as well as Merchandise No. 5.

A. Why, as I can say off-hand, about ten to twelve years I have supplied them caffeine, ten to twelve years caffeine, and, as aforesaid, about eight years Merchandise No. 5.

Q. What are the proportions or quantities, I should say, of the coca leaf and the kola nut that are used in or consumed in the production of say, one hundred pounds of Merchandise No. 5, or one hundred gallons, say?

A. I must decline answering this question because it is a part of my trade secret to produce Merchandise No. 5."

Mr. Miller: Right there we object to any further read-

ing of the deposition because he refuses to answer the question.

The Court: What was that question?

Mr. Sizer: (Reading:)

"Q. What are the proportions or quantities, I should say, of the cola leaf and the kola nut that are used in or consumed in the production of say, one hundred pounds of Merchandise No. 5, or one hundred gallons, say?

A. I must decline answering this question because it is a part of my trade secret to produce Merchandise No. 5."

I submit that is entirely irrelevant in this case and is a trade secret which he cannot be required to state.

The Court: I don't think it is his trade secret. He is employed to make up what they call Merchandise No. 5, and it is not his trade secret.

Mr. Sizer: The method by which he makes that is his trade secret.

Mr. Sizer: The method by which he makes that is his trade secret. That is the reason he was employed by the Coca-Cola Co., they knew what they wanted but not exactly how to get it.

The Court: What is that question, again?

Mr. Sizer: The question is this: (Reading)

"Q. What are the proportions or quantities, I should say, of the coca leaf and the kola nut that are used in or consumed in the production of say, one hundred pounds of Merchandise No. 5, or one hundred gallons, say?

A. I must decline answering this question because it is a part of my trade secret to produce Merchandise No. 5."

The Court: If this witness declines and does not show anywhere during his deposition as to what amount of coca leaves and kola nuts entered into this Merchandise No. 5, I will exclude it from the fact that it is impossible to tell whether it is in this composition or not.

Mr. Miller: That is the reason we did not offer the deposition based on the Syrup of Figs ruling.

Mr. Sizer: I submit that the question as to what amount of coca leaves and kola nuts is in Merchandise No. 5 is not a question that is essential or important here in ascertaining whether Merchandise No. 5 is an element of this compound. It is an element of it, they say, it has always been used in it and this is entirely irrelevant as to how much coca leaves or kola nuts are in it.

The Court: The whole matter is whether or not in his manufacture of it there is an appreciable quantity of these substances. It may be important as to whether there was an appreciable or was not an appreciable quantity of it,

and if this witness declines to state, there is nothing here to show how much coca leaves or kola nuts he used in making Merchandise No. 5, and the jury cannot determine whether there was an appreciable amount, and all the evidence on that subject should be excluded.

Mr. Sizer: We show that he does not use anything else but coca leaves and kola nuts, and the alcohol he puts in it.

The Court: I don't recall that you have shown that. If he says that later on, then I will rule on that when we come to it, but up to the present he has declined to say how much coca leaves or kola nuts is used in making Merchandise No. 5 and I exclude any statement on the subject.

Mr. Sizer: That same evidence is drawn out in a number of analyses that we have had.

The Court: The witness cannot come in and testify and then decline to state the facts that would make his testimony valuable or not valuable.

Mr. Sizer: Doctor Schaeffer was being examined by the Government.

The Court: But if you want his testimony on that you had better get him here. I don't suggest, it is immaterial to me, but I will not allow his testimony in this deposition if he declines to say how much it is. That is the ruling.

Mr. Sizer: I will go on but I think he covers that point. Another question of similar nature is put and he again declines to answer, and then he goes on. (Reading:)

"BY MR. MILLER:

Q. Through what process do you put the coca leaves and the kola nuts in order to produce this Merchandise No. 5 or by what treatment, what treatment do these substances undergo to produce the product No. 5, or Merchandise No. 5?

A. It is an extraction process of a specific character, devised in the laboratories of the Schaeffer Alkaloid Works to produce an extract from coca leaf and kola nut which is absolutely free from cocaine.

Q. Well, I have asked you to state what that process was?

A. I must decline to answer because this is a trade secret of the Schaeffer Alkaloid Works."

Mr. Miller: Now, we have to take his bald statement on that. We cannot verify it by chemists or any other way and we object to it.

The Court: I think that objection is well taken.

Mr. Sizer: I submit that when a chemist is employed — we have tried to make this extract in a certain way. We have found we can get it better made from some other man

through a process that he has invented, and when he is put on the stand simply to testify what is in that Merchandise No. 5, he is not bound to disclose the process by which he makes that Merchandise No. 5.

The Court: You are offering to show that he has a process by which he extracts the cocaine.

Mr. Sizer: He says that this process extracts all the cocaine, that this is entirely free from cocaine.

Mr. Miller: But he might put in one coca leaf or a ton of them, and still that answer of his would be true.

Mr. Sizer: Yes.

Mr. Miller: And I say if he puts in one leaf that would not be an appreciable quantity, and he would not be within the rule.

The Court: I think that is true. The Court and the jury must be in possession of the facts and not of his conclusions.

Mr. Sizer: Now, all in the world we undertake to establish is not how much extract of kola nut or coca leaves there may be in this mixture. We propose to show and will show that this Merchandise No. 5 gives a distinct flavor to the entire product of Coca-Cola syrup, and we show by this witness that this extract is compounded from coca leaves and kola nuts, and it is immaterial whether he takes a very small or a very large part of coca leaves or kola nuts.

The Court: I think the relative degrees or amounts, provided they are material, is unimportant, but I think there must be enough there to make it appreciable, and there is nothing there to show whether it is appreciable or not, and nothing from which anybody could tell whether putting fifteen gallons of the mixture in 1250 gallons of Coca-Cola there would be any appreciable amount of the extract.

Mr. Sizer: The fifteen gallons put in the 1250 gallon mixture shows the amount.

The Court: No. It shows fifteen gallons but whether there is any appreciable quantity of the coca leaves or kola nut we do not know, and we must know the quantity of the coca leaves and kola nuts.

Mr. Sizer: We will show by the other witnesses the result of analyses, but the question they are pressing here — the insistence they are making, is that Doctor Schaeffer is bound to state in answer to their question, his process.

The Court: You offered that for the purpose of showing that there is extract of coca leaf and kola nut in this compound, — Is not that your purpose?

Mr. Sizer: The principal purpose is to show that Mer-

chandise No. 5, being compounded from coca leaves and kola nuts, does not contain cocaine.

The Court: The Government agrees with you on that. You do not have to prove that; everybody agrees that there is no cocaine in it.

Mr. Sizer: The second point is that Merchandise No. 5 is made from coca leaves and kola nuts.

The Court: And on that I rule that evidence to show that the witness put in coca leaves of a quantity not shown which may be entirely inappreciable, is not competent. He must show the quantity so that the Court and jury can determine whether it is appreciable. That is my ruling.

Mr. Sizer: We except to that ruling, and we will show that in the development of the testimony.

The Court: That may be done.

Mr. Miller: But they have not done it.

Mr. Sizer: We cannot show everything at one time.

The Court: Well, we will come to that later. Gentlemen of the jury, I exclude that portion of the statement of this witness to the effect that he uses coca leaves and kola nuts in the manufacture of Merchandise No. 5 under the grounds that you have heard.

Mr. Sizer: (Reading)

CROSS-EXAMINATION,
BY MR. HIRSCH:

Q. Dr. Schaeffer, you stated on direct examination that the Schaeffer Alkaloid Works, of which you are the president, is one of the largest manufacturers of cocaine possibly in the world?

A. Yes.

Q. This manufacturing is carried on at your plant at Maywood, New Jersey?

A. Yes.

Q. You have a secret process by which you manufacture or extract the cocaine, have you not?

A. Yes.

Q. And that process is a trade secret?

A. Yes, sir.

Q. Now then, the process by which you manufacture cocaine — from this process you supply cocaine as it is desired and demanded?

A. To the trade.

Q. To the trade?

A. Yes.

Q. You also stated, Dr. Schaeffer, that you manufacture Merchandise No. 5?

A. Yes, sir.

Q. For the Coca-Cola Company?
A. Yes.
Q. Of Atlanta, Ga.?
A. Yes, sir.
Q. Now, is the same process used in the manufacture of Merchandise No. 5 as is used in manufacturing cocaine for commercial purposes?
A. They are two entirely different processes.
Q. Could you from the residue that is left from the process by which you manufacture your cocaine for commercial purposes, could you out of that residue, or what is left over, make up any part of Merchandise No. 5?
A. Impossible.
Q. Do you from that process by which you make commercial cocaine make up any constituent of Merchandise No. 5?
A. Not one.
Q. Then the residue or what remains over from your process by which you manufacture the commercial cocaine, is it in any way used in the manufacture of Merchandise No. 5?
A. Not one particle of it.
Q. You also stated, Doctor Schaeffer, that you have an especial process by which you manufacture Merchandise No. 5, conceived and invented and prepared by you or by your works or laboratory men in your works?
A. The ideas have been originated by myself personally. ly.
Q. Now, in originating these ideas you originated a process by which you manufacture Merchandise No. 5, did you not?
A. Yes.
Q. Is that, Dr. Schaeffer, a trade secret?
A. Yes.
Q. Is the secret of that process by which you manufacture No. 5 known to the Coca-Cola Company?
A. No.
Q. In working out this process, Doctor, by which you manufacture Merchandise No. 5, was it necessary for you to have special machinery built?
A. It was. I devised and constructed special machinery, totally different from the machinery which I use to manufacture cocaine for the trade.
Q. Now, that special process or special machinery by which you manufacture cocaine for the trade is different, is it not, from your machinery and process by which you manufacture No. 5 for the Coca-Cola Company?
A. It is absolutely different; it is exclusively — this

machinery is — for the manufacture of No. 5 and serves to no other purpose.

Q. Now, Dr. Schaeffer, has Merchandise No. 5 any cocaine in it?

A. It has not.

Q. Now, in this special process by which you manufacture No. 5 for the Coca-Cola Company, is it not a fact that one of the by-products therefrom is cocaine?

A. One of the by-products is cocaine.

Q. And your purpose in using this machinery, this special machinery and special process, is to make merchandise No. 5?

A. The aim of that machinery is the production of Merchandise No. 5.

Q. And it is not the purpose of that process to use the cocaine?

A. The cocaine which I obtain during this process is used subsequently because it is a product of value. The cocaine so obtained I regard as a by-product. The principal object of this machinery is the manufacture of Merchandise No. 5.

Mr. Miller: I object to how he regards cocaine.

The Court: I do not understand that the question of cocaine has anything to do with it one way or the other.

Mr. Sizer: That is true.

Mr. Hirsch: That was on account of a pleading filed at the time the testimony was taken where there was a charge that we used cocaine taken from the coca leaf.

The Court: Well, that is eliminated and it is not competent now.

Mr. Sizer: (Reading)

"Q. Now, is this Merchandise No. 5, or any of the ingredients or contents thereof made up from the refuse product"?

A. I do not make Merchandise No. 5 from any refuse product.

Q. Doctor, you have also stated in your direct examination that you are a large manufacturer of caffeine.

A. Yes.

Q. Is it not true that caffeine is derived from a great number of plants?

A. Yes.

Q. Is it not also true that the caffeine so derived whether derived from the coffee bean or the tea leaf, or tea dust is identical?

A. Absolutely identical.

Q. When you stated that you derived the caffeine from the tea dust, did that mean that it is inferior in quality to

caffeine derived from the tea leaf?

A. It is in every respect the same substance.

Q. Then the so-called commercial caffeine must be the same thing no matter from where it is derived or from what source it is derived?

A. It is the same substance in every respect.

Q. You say, Doctor, that you have been supplying the Coca-Cola Company with caffeine ten or twelve years, and this Merchandise No. 5 seven or eight years?

A. Yes.

Q. How long have you known the product Coca-Cola?

A. Thirteen years.

Q. Thirteen years?

A. Yes, fourteen years, thirteen or fourteen years I have heard of it.

Q. Is this product that you refer to a mixture or compound?

A. Which product?

Q. Coca-Cola?

A. It is a compound.

Q. It is sold as Coca-Cola, do you know, to the retail trade?

A. It is sold to the retail trade as Coca-Cola.

Q. By the word "Compound" do you mean a single chemical compound, or a mixture of chemical compounds?

A. A mixture of chemical compounds; I would say it was a mixture of chemical compounds.

Q. Doctor, was kolotin formerly considered to be a glycoside?

A. There are conflicting opinions or publications regarding kolotin; in fact I have not paid much attention to that substance. My investigation work in my laboratories is more directed to the isolation of substances only to the extent of their interference with the manufacturing processes.

Q. Do you know that the present view is that kolotin is the chemical combination of caffeine and tannic acid?

A. It having no commercial value, I did not specialize myself as to it.

Q. Doctor, you state in your direct examination that the so-called Merchandise No. 5 contained some of the ingredients of the coca leaf and the kola nut, did you not?

A. Yes.

Q. Has merchandise a distinctive taste?

A. Yes.

Q. Is this distinctive taste or flavor imparted to a mixture or compound such as coca cola?

A. Yes.

Q. Now, I understood you to say, Doctor, that as popularly used the words coca and coca leaf are synonomous?

A. They are regarded as synonomous, because coca leaf is the principal part of the coca shrub, having a commercial value.

Q. Now, Doctor, suppose you should take coca and cola and form the words coca cola and that these words had been trade-marked in 1887, in 1893, and again in 1895, and that the words had been continuously used in connection with a food product, would you [illegible] that that part of the word "coca" as expressed in the connection I have put to you is identical with the coca leaves?

A. I would not regard it that way; I would regard coca cola as a distinctive name for a specific compound.

Mr. Miller: Now, we object to that.

The Court: I sustain that objection.

Mr. Sizer: (Reading.)

"Q. Do you supply the so-called Merchandise No. 5 to any company other than the Coca-Cola Company?

A. I do not sir, and never did.

Q. And all of the Merchandise No. 5 is supplied through the Roessler & Hasslacher Chemical Company?

A. Yes, sir.

Q. Doctor, if different samples of caffeine were extracted from the coffee bean and from the tea dust or from the tea leaves, and if these samples were to be put before scientific experts could they tell the difference?

A. No.

Q. Could they tell from where it was derived?

A. No.

Q. Doctor, do you know any work that has been published whereby the valuable qualities of the coca extract have been disseminated by collective investigation among several hundred physicians?

A. Yes, there is a History of Coca by Dr. W. Golden Mortimer.

Q. Doctor, in your opinion is this valuable constituent entirely due to the cocaine contents of the coca leaf?

A. I didn't understand you. Please repeat the question.

Q. Well, you said there was the coca extract, you then said that the coca extract had valuable qualities that had been disseminated. Now, are those valuable qualities entirely due to the cocaine contents of the coca leaf?

A. To reply to that question I would say that the extract of coca leaf has a different effect of action as a solution of cocaine; the same with almost every drug containing physiological active bodies — the principal active body

in its chemically pure state show different effects compared with extract made from the same drug. There are, for instance more than twenty different extracts prepared from cinchona bark, the same have different effects of physiological action. They differ in various respects regarding physiological effect from the principal alkaloid contained in cinchona drug, namely quinine. The difference of the aforesaid mentioned extracts is to be attributed to the different methods used to produce said extracts.

Mr. Miller: I object to that because no qualification is shown of Doctor Schaeffer as a physiologist at all. He was put on only as a mnufacturer.

Mr. Sizer: I do not think that is material and I do not object to your Honor excluding it.

The Court: It is excluded by consent, then.

Mr. Sizer: (Reading:)

"Q. Doctor, from what institution of learning are you a graduate?

A. I graduated in the University of Freiburg in Baden.

Q. What degree did you receive-

A. Doctor of Philosophy.

Q. How long have you been connected or associated with different industries that pertained to manufacturing chemists?

A. I was for sixteen years Director of the firm of C. F. Boehringer & Son in Mannhein, Germany, one of the leading firms in the manufacture of chemicals in Europe. I later on established my own works in the United States at Maywood, New Jersey. I manufacture a number of fine chemicals at my works.

Q. In your experience, and in your work, Doctor, have you or have you not made close study of the properties of the coca leaves and kola nuts?

A. I have.

Q. And the extraction of different alkaloids therefrom?

A. I have.

Q. Doctor, in the manufacture of the product which is known as coca cola and which is a food product, would you or would you not say or rather consider Merchandise No. 5 an essential ingredient thereof?"

Mr. Miller: I object to that because it depends on the quantity with which it is mixed, and that is not shown.

The Court: I sustain that objection; that is not a matter for an expert.

Mr. Sizer: (Reading:)

"A. I do.

Q. Is it essential in giving coca cola syrup its peculiar flavor?

A. It gives it a specific flavor.

RE-EXAMINATION,
BY MR. MILLER:

Q. You have stated, as I understood you, that different methods are employed in producing extracts from a particular growth, such as the coca leaf or the kola nut, and did I correctly understand you to say that the different properties that resulted containing these extracts —

A. (Interrupting.) Products, I said.

Q. I will say properties for the present, — that resulted or contained these extracts were due to the different methods employed?

A. Yes.

Q. How many different methods are employed in the manufacture of cocaine to your knowledge?

A. It is very hard to say — I speak for myself — I change processes dozens of times which I use, and I am still investigating to make new changes with a view to getting a better yield of an alkaloid like cocaine which is of an exceedingly delicate nature. Also, other manufacturers of cocaine have processes for the manufacture of the same article, and the same are the business secrets of the individual manufacturers.

Q. The object sought, and the principal one from your point of view and that of other manufacturers, is to obtain the highest yield of cocaine at the least expense?

A. And the purest possible preparation.

Q. The cocaine is the principal commercial ingredient or the valuable one in the coca leaf is it?

A. Yes, sir.

Q. And there are two distinct varieties or growths of the coca leaf?

A. There are several varieties.

Q. But there are two principal ones are there not?

A. I would say two principal ones, but there are varieties other than the principal ones. In general you are right, there are two principal varieties.

Q. From a commercial standpoint there are two?

A. I would say yes.

Q. And which of the two, if you confine your manufacture to either, do you employ in the manufacture of the product or Merchandise No. 5?

A. Chiefly the so-called Truxillo Coca.

Q. Can you give us substantially or approximately the analysis or contents of Merchandise No. 5?

A. Merchandise No. 5 contains a number of organic bodies —

Mr. Hirsch: (Interrupting.) Whether Doctor Schaeffer is going to give it to you or not, I want to say that the law does not require the giving out of a formula or of that particular formula — it is a trade secret of the Coca-Cola Company.

The Witness: I want to reply to him in a general way.

Mr. Hirsch: All right.

The Witness: Merchandise No. 5 contains a number of organic substances. I would not be able to give you even the names of the bodies in that extract. There are in extracts of this kind a number of substances which have not even been identified so far; it is impossible for me to say how many substances there are in an extract of this kind.

BY MR. MILLER:

Q. Do you know some of them that are in it, and can you give the names of those that you do know?

A. Well, I could give you the names of some, that is tannic acid is in the extract.

Q. Tannic acid?

A. There are several tannic acids.

Q. And what else do you know that is in Merchandise No. 5 that is prepared at your factory besides the tannic acid?

A. I never have made any attempt to isolate any of the other so-called extractive bodies and substances which have not been identified as yet. The question being of no commercial value I never was tempted to waste time on it.

Q. So far as you know then in the process of treatment that the coca leaf and the kola nut undergo at your plant, none of the properties are extracted or taken away except the cocaine, the remainder are presumably contained in Merchandise No. 5?

A. Exactly.

Q. I understood you to say on cross-examination that there were a number of plants from which caffeine was obtained, or which yielded caffeine. Will you please enumerate that number?

A. I will give you the principal plants carrying caffeine, these: tea, coffee, matte — this is the Paraguay variety growing in South America, cocoa, kola nut, guarana —I think that will do for the present.

Q. What is guarana?

A. Guarana is a concentrated milk.

Q. How is it made?

A. It is, as I understand, made from a milk flowing out from a tree in the interior of South America and concentrated to a paste.

Q. Now, you have enumerated all of the plants?

A. Not all; all I remember of them.

Q. The growths that you have mentioned are the ones in which caffeine is found so far as you know?

A. Yes, these are the principal ones; caffeine is present in a number of plants outside of the ones I have mentioned.

Q. Well, any of the others now?

A. Why, I would have to consult a text book for them there are other plants having no commercial value, you know, and which is more scientific than practical; plants that are of no use commercially and that are not employed.

Q. That are not employed?

A. They are commercially not employed.

Q. Did I understand you to state that you made your contract for the production and furnishing of this Merchandise No. 5 with the Coca-Cola Company?

A. Through The Roessler & Hasslacher Chemical Company.

Q. But is it or not a fact that this chemical company is merely employed as a convenience for distributing the product?

A. Exactly.

Q. Then the contract is directly with the Coca-Cola Company?

A. It is the Roessler & Hasslacher Chemical Company that writes the contract out, because they are the sole agents for that article for Schaeffer Alkaloid Works.

Q. Do you employ that chemical company merely as a convenience and you manufacture this product expressly for the Coca-Cola Company?

A. Exactly.

Q. Cocaine is produced by a great many manufacturers?

A. By a limited number of manufacturers.

AND FURTHER THIS DEPONENT SAITH NOT.

W. L. Schaeffer.

Subscribed and sworn to before
me on this 9th day of
November, 1910.

ANITA HOWELL,
Notary Public,
New York.

(Seal.)"

Mr. Miller: Now, we renew our request that the jury be instructed that what this witness says about coca leaves and kola nuts be excluded because there is nothing brought out in his cross-examination which shows the relative quantities.

Mr. Sizer: Now, this is the situation: The Government took this deposition of Doctor Schaeffer and they asked him questions whether or not he makes this Merchandise No. 5 from coca leaves and kola nuts and he says he does, and he says that Merchandise No. 5 is simply an extract from those two substances. Now, when they get to the question of the proportion of coca leaves and kola nuts that he uses, and about which they are inquiring, he declines to answer, and I submit that that question cannot deprive us of the right to read the deposition which they themselves took to show, that as a matter of fact he does say those two substances and nothing else are used in producing this particular Merchandise No. 5. We do not undertake to say what proportion of coca leaves and kola nuts are used.

The Court: That is just what I rule you have to show to make it competent. So, gentlemen of the jury, on the motion of the defendant all of the statements and the testimony of this witness to the effect that coca leaves and kola nuts are used in the production of Merchandise No. 5 is ruled out until such time as there may be evidence from this witness showing the amount of each used so that the Court and jury may determine whether they are appreciable quantities as they enter into this product of Merchandise No. 5.

Mr. Sizer: Your Honor will further note that Mr. Miller on re-examination asked: "So far as you know, then, in the process of treatment that the coca leaf and the kola nut undergo at your plant, none of the properties are extracted or taken away except the cocaine, the remainder are presumably contained in Merchandise No. 5," and the witness says: "Exactly."

The Court: I noted that when you were reading it, but where a witness is being examined and the Court is not present to compel the witness to answer questions and he declines to answer important matters, his deposition will not be admitted.

Mr. Miller: It is not fair for them to insist that Mr. Miller ask this and that; they adopted the witness.

The Court: There is no question of unfairness here —

Mr. Miller: But he keeps referring to the fact that I asked the question.

The Court: Well, that is a fact.

Mr. Miller: But he adopted it.

Mr. Sizer: If your Honor please —

The Court: Never mind; go on.

JAMES GASTON (Col'd.),

the next witness called on behalf of the Claimant and In-

tervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Where do you live?
A. 708 Young street, Atlanta, Ga.
Q. For whom do you work?
A. Mr. Asa G. Candler.
Q. Is that in the Coca-Cola factory?
A. Yes, sir.
Q. How long have you been working there?
A. I have been working there twelve years as near as I can recollect.
Q. What do you do?
A. Cook the Coca-Cola syrup.
Q. You dump the sugar into the kettle?
A. Yes, sir.
Q. Are you what they call the cook?
A. Yes, sir.
Q. How long have you been cook?
A. I have been cook five years.
Q. Do you chew tobacco?
A. No, sir.
Q. Did you ever chew?
A. No, sir.
Q. What kind of clothes do you wear when you are in the factory?
A. Overalls and jumper and shoes.
Q. What kind of shoes, — heavy shoes?
A. Heavy shoes with good bottoms and tops to them.
Q. Do you wear those shoes you have on in the factory, out on the street?
A. No, sir.
Q. Did you ever work around that kettle in your undershirt without any jacket on?
A. No, sir.
Q. Did you ever wear a pair of shoes around the kettle that your toes were sticking out the front of?
A. No, sir. I could not do that, it would be dangerous that stuff splashing out and scalding my feet.
Q. If you splashed any sugar on the platform, what would it do?
A. If we scattered any on the platform we took a shovel and shoveled it in, but we hardly ever scattered any. We dumped the edge of the barrel over on the kettle and none falls on the platform.
Q. Does any fall on the floor?

A. No, sir; only splashes.

Q. Do you ever go down on the floor and sweep up anything and then put it in the kettle?

A. No, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. When did you get into Chattanooga?

A. Last night.

Q. Where are you stopping?

A. 634 — I don't know the name of the street now.

Q. Do you know the name of the man you are stopping with?

A. I stop with a lady.

Q. What is her name?

A. She is a widow lady, she has no husband.

Q. Well, what is her name?

A. I can't remember her name now.

Q. Can't remember the name of the woman where you are stopping and can't remember of the number of the street?

A. I know the number of the house but not of the street.

Q. Which part of town?

A. East side.

Q. How did you happen to go over to that place? Where you didn't know the name of the street or the name of the woman?

A. I was recommended there by the bell boy.

Q. At the Patten hotel?

A. Yes, sir.

Q. Did he tell you the name of the street to go to?

A. Yes, sir, but I have forgotten.

Q. You don't mean you never chewed tobacco in your life?

A. Sure.

Q. You never chewed?

A. No, sir.

Q. Do you smoke?

A. I smoke cigars but not on the job.

Q. What kind of stockings or sox do you wear on the job?

A. I wear ten cents stockings, clean.

Q. Do you change those when you go there in the morning?

A. Yes, sir.

Q. Where do you change them?

A. I change them on the job.

Q. On the job?

A. Yes, sir.

Q. You mean you change them up on the platform?

A. No, sir; I don't put on my shoes there; I have a place downstairs to change.

Q. Where is that?

A. In the basement.

Q. Whereabouts in the basement?

A. It is near the boiler room.

Q. Is that the basement where the mixing of the Coca-Cola syrup is made up?

A. No, sir; it is away around beyond that.

Q. It is on that same floor?

A. Yes, sir; but not down where it is mixed up.

Q. Is it in that same room?

A. No, sir.

Q. How many rooms are downstairs?

A. Two rooms.

Q. One of them is the boiler room?

A. Yes, sir.

Q. You go in the boiler room?

A. Yes, sir.

Q. Where do you keep your clothes that you take off when you go out there — where do you put them?

A. I leave them down near the boiler room.

Q. Then you leave your change of clothing from time to time in the boiler room?

A. Yes, sir.

Q. Then you go down and put them back on when you are through?

A. Yes, sir.

Q. The same way with your socks?

A. Yes, sir.

Q. You go there and get them and put them on?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Do you remember when the Government inspectors came down there to look over the building?

A. Yes, sir; I can recollect one time when they came down there.

Q. You were cooking there at that time?

A. Yes, sir.

Q. These questions I have been asking you about what you did — that was the condition in October, 1909, was it?

Mr. Miller: I object to that question.

Mr. Sizer: I omitted to ask whether there had been any change since October, 1909.

BY MR. SIZER:

Q. Were you the cook in 1909, a year ago last October?

A. Yes, sir.

The Court: You mean was he conducting the dressing and so forth differently at that time — you can ask him that.

BY MR. SIZER:

Q. Were you at that time dressing and conducting yourself as you have heretofore stated in this testimony?

A. Yes, sir.

RECROSS-EXAMINATION,

BY MR. MILLER:

(This examination was by consent of counsel after adjournment of Court, agreed to be incorporated as a part of the testimony of this witness as if given in open court.)

Q. Have you yet learned or found out who you are stopping with?

A. Her name is Mrs. Boyer.

Q. Boyd or Boyer?

A. Boyd.

Q. Boyd? (Spelling) B-o-y-d?

A. Yes, sir.

Q. What street does she live on?

A. East Ninth street, or East — I can't remember I had it in my grip when I started up here.

Q. You don't remember what it is?

A. No, sir; I don't remember the street. The bell boy can tell you down at the hotel, because he stops right across the street from me.

Q. Do you know what the bell boy's name is?

A. He is the head bell boy. I don't know what his name is.

Q. Who was it advised you to come up to Chattanooga?

A. Mr. Dobbs said for me to come.

Q. Had you any talk with him, with Mr. Dobbs about what you should testify to in the case?

A. No, sir.

Q. He didn't tell you what to come for?

A. No, sir.

Q. When you came did you have any talk as to what you came for?

A. No, sir.

Q. When you came, what occured next?

A. What occured next—how?

Q. After you came here did you have any talk with any body?

A. No, sir; the bell boy simply told me how at the Hotel Patten.

Q. The bell boy simply met you at the Hotel Patten and told you where to go to?

A. Yes, sir; I had to go to Mr. Mitchell there.

Q. You talked to Mr. Mitchell about what your testimony would be in the case?

A. No, sir.

Q. Did you talk to anybody else about what your testimony would be in the case?

A. I really don't know, you know.

Q. You didn't know anything about it until you were called on the stand this morning?

A. I knew I had to come but didn't know what I had to testify for.

Q. You didn't know what you were going to testify about at all?

A. No, sir.

Q. You didn't know what you were going to be asked about?

A. No, sir; nothing more than the cooking of the syrup.

Q. And you were not asked about it until you came on the stand?

A. No, sir.

Q. Did anybody talk to you about having cooked the syrup?

A. No, sir.

Q. What were you going to testify on that point?

A. Nobody talked to me, about the cooking.

Q. Did anybody talk to you about what you were going to testify?

A. No, sir.

Q. In reference to the cooking of the syrup or anything else?

A. No, sir.

Q. What number—do you remember where you live in Atlanta?

A. 78 Young street.

Q. How long have you lived there?

A. I have been living there going on four years.

Q. Did you say you came up Monday night?

A. No, sir; last night.

Q. Tuesday night?

Q. Yes sir.

Mr. Miller: You may examine him, Mr. Hirsch.

Mr. Hirsch: That is all.

(Witness excused.)

(Continuation of Morning Session.)

Mr. Hirsch: Shall we go on? We have a number of scientific witnesses and it is ten minutes to two now.

The Court: You might examine them on the preliminary matters.

DR. JOHN WILLIAM MALLET,

the next witness called on behalf of the claimant and Intervenor, The Coca-Cola Company, of lawful age, first being duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. What is your name and occupation?

A. John William Mallet; I am a chemist.

Q. How long have you been so engaged?

A. All of my adult life, since 1855.

Q. What particular opportunity have you had for studying this line of work?

A. I have been professor of chemistry in several institutions and been teacher of chemistry, and also engaged in investigations for commercial and other purposes, practically through that whole period, with the exception of four years of the Civil War.

Q. What experience have you had along the line of analytical work?

A. My last answer I think covers that. I have been engaged in analytical work during that time.

Q. Where did you receive your education?

A. At the universities of Dublin and Gottingen.

Q. What institutions of learning are you now connected with or have you been connected with, and in what capacity?

A. I have been professor of chemistry in the state universities of Alabama and Texas, and the Medical college of Alabama at Mobile, the Medical Department of the State University of Louisiana at New Orleans which has since become Tulane University; the Jefferson Medical College of Philadelphia, and the greater part of the time the University of Virginia.

Q. Are you now connected with the University of Virginia?

A. I have ceased to actually teach but I remain a member of the faculty, so-called, Professor Emeritus, for the last two years.

Q. What scientific degrees do you hold and from what institutions?

A. Dr. of Philosophy from the State University of Gottingen, Dr. of Medicine from the State University of

Louisiana, New Orleans Medical School; and the Degree of Law from Princeton University, the John Hopkins University, the University of Pennsylvania and one or two others.

Q. Have you had any experience in the examination of food products, and if so, what?

A. I have been frequently called upon to examine food products, particularly for commercial purposes, and particularly with a view of preparation for my lectures in Industrial Chemistry, and particularly in connection with some of the international exhibitions. I made two of the reports, one more particularly referring to food, at the Philadelphia Exhibition in 1876.

Q. Have you ever held any official position in this country or abroad in connection with your work, and if so what?

A. I do not know exactly to what you refer.

Q. Have you ever been on any commission for the examination of food or any commission referring to analytical work, either in this country or abroad?

A. I have served three times on the Assay Commission at the mint at Philadelphia. I have been one of the judges at the Philadelphia Exposition that I referred to just now. I have been called upon to examine the water supplies of several cities, — Philadelphia, Norfolk and Richmond.

Q. I will ask you if you are a member of any scientific societies, here or abroad, and if so, what?

A. I am a Fellow of the Royal Society of London, a Fellow of the Chemical Society of London, at one time vice-president. I am a member of the Chemical Society of this country, at one time president of it, corresponding member of the American Academy of Science, Boston; corresponding member of the Chemical Society of New York; member of the American-Philadelphia Society of Philadelphia; member of the State Medical Society of Virginia; honorary member of the American Medical Chiurgical Society; and some others.

Mr. Hirsch: Now I have finished that part, shall I go on?

The Court: If you have any preliminary questions that you could ask him, you can go on, but that is within your judgement.

BY MR. HIRSCH:

Q. Have you received any samples purporting to be Coca-Cola syrup?

A. Yes, sir.

Q. From whom did they come?

A. Do you refer to Coca-Cola syrup as sold?

Q. Yes.

A. I have received several samples at different times but actually analyzed three samples. Two of them were sent to me from the factory at Atlanta, shipped by express, by Mr. Johnson and purporting to be a part of the barrels and kegs seized.

Q. Was that from Atlanta or Chattanooga?

A. I received them from Chattanooga, I beg pardon; I believe I did say Atlanta. I myself bought in the open market at Charlottesville a third sample, buying it from a local drug store.

Q. Did you receive any other sample?

A. I received afterwards two samples which were not submitted to an analysis, but at a subsequent date shipped from Atlanta.

Q. Now, taking up the first of the samples that you mentioned, did you make an analysis of those samples?

A. I did.

Q. What was the result of your analysis?

The Court: It is just two minutes of adjournment and this is a good place to interrupt.

Whereupon an adjournment was taken until Thursday morning, March 23, 1911, at 9 o'clock A. M.

EXHIBIT NO. 1 TESTIMONY OF HOWARD CANDLER.

UNITED STATES OF AMERICA.
Department of the Interior.
Patent Office.

To all persons to whom these presents shall come, GREETING: THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of Paper Exhibits A, B, C, D, E, F, G, H and I, filed August 15, 1892, and Decision of the Examiner of Interferences, December 15, 1892, in the matter of Interference Number 15,753. The Coca-Cola Company vs. Kent.

SUBJECT-MATTER:
Trade-mark for Tonic.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington this 25th day of November, in the year of our Lord one thousand nine hundred and five and of the Independence of the United States of America the one hundred and thirtieth.

F. I. ALLEN,

(SEAL)

Commissioner of Patents.
U. S. Patent Office
August 15, 1892.

Ex. A.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.

To all persons to whom these Presents shall come
GREETING:

This is to certify that the annexed is a true copy from the Records of this Office of the Lable Registered by
John S. Pemberton.
June 28, 1887, Number 5,272,
of which the following is the title:
"Coca-Cola Syrup and Extract".

In testimony whereof I, W. E. Simonds, Commissioner of Patents, have caused the Seal of the Patent Office to be affixed this 2nd day of April in the year of our Lord one thousand eight hundred and ninety-two and of the Independence of the United States the one hundred and sixteenth.

W. E. SIMONDS,
Commissioner.

No. 5,272.

UNITED STATES OF AMERICA,

PATENT OFFICE,

To-wit: BE IT REMEMBERED, That on the Sixth day of June, Anno Domini, 1887, John S. Pemberton, of Atlanta, Georgia, deposited in this Office for registration a Label, of which the following is the title:

"Coca-Cola Syrup and Extract".

the right whereof he claimes as sole proprietor, in conformity with the law of the United States entitled "An Act to amend the law relating to Patents, Trade-Marks and Copyrights" approved June 18, 1874.

In Testimony whereof I have caused the seal of the Commissioner of Patents to be hereunto affixed this twenty-eighth day of June, 1887, and of the Independence of the United States the one hundred and eleventh given under my hand, at Washington, D. C.

The foregoing is a copy of the record, and attached hereto is a copy of said Label.

(Seal) BENTON J. HALL,
Commissioner of Patents.

Ex. B.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE

To all persons to whom these Presents shall come,

GREETING:

This is to certify that the annexed is a true copy from the records of this Office of an Instrument of writing executed by John S. Pemberton, W. E. Venable and George S. Lowndes, July 8, 1887 and recorded in Liber K—36 page 384.

Said record has been carefully compared with the original, and is a correct transcript of the whole thereof.

In testimony whereof, I, Benton J. Hall, Commissioner of patents, have caused the Seal of the Patent office to be affixed this 3rd day of May, in the year of our Lord one thousand eight hundred and eighty-eight, and of the Independence of the United States the one hundred and twelfth.

BENTON J. HALL,
Commissioner.

Liber K 36
P. 384

Whereas John S. Pemberton of the City of Atlanta in the County of Fulton, and State of Georgia, is the owner of a formula for Coca-Cola Syrup and Extract, and did, on the 28th day of June, 1887, register in the United States Patent Office a Label, under the title of Coca-Cola Syrup and Extract, Number 5272, and,

Whereas, Willis E. Venable and George S. Lowndes, both of the same place, are desirous of acquiring an interest in said formula and registration:

Now, therefore, This Indenture Witnesseth, that for and in consideration of the sum of one dollar to be in hand paid, the receipt of which is hereby acknowledged, as well as in consideration of an advance loan of $1200.00 without interest, but which is to be refunded to said Lowndes and Venable out of my share of profit in the hereinafter mentioned business; and in further consideration of the said Lowndes and Venable furnishing the necessary capital to conduct said business without charging interest therefor:

I, the said John S. Pemberton, do hereby sell and assign a two-thirds interest in and to said registered label to the said Willis E. Venable and George S. Lowndes, and the sole right to manufacture, sell and control the business and use the said label for the benefit of the parties concerned, for and during the full term of said registration, or any renewal thereof, and further agree to furnish said Venable and Lowndes all knowledge and information necessary for the manufacture of the said Coca-Cola syrup and Extract.

And it is agreed by and between the parties hereto, that

said Lowndes and Venable shall alone conduct the business of manufacturing and selling said Coca-Cola Syrup and Extract during the term of registration of said label. It is further agreed that said Pemberton shall receive one- and fixture said Pemberton has on hand that can be used in the manufacture of Coca-Cola Syrup and Extract for the benefit of said business paying the said Pemberton therefor original cost.

It is further agreed that said Pemberton shall receive one-third the net profits arising from said business, and that he shall have the privilege of drawing the same monthly.

This July 8, 1887. Signed in duplicate

Witness John S. Pemberton.

Ed. Holland. W. E. Venable.

Recorded July 14th, 1887. George S. Lowndes.

B. A. J.

N. F.

Received for record June 5, 1891, and recorded in Liber H 43, page 309, of Transfer of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

Patent Office C. E. Mitchell,

United States Exd. A. J. J. Commissioner of Patents of America.

Georgia, }
Fulton County, }

This agreement witnesseth that whereas John S. Pemberton, of one part, and W. E. Venable and George S. Lowndes of the other part, on the 8th of July 1887, by an instrument duly recorded in the office of the Commissioner of Patents, Washington, D. C., on the 14th of July 1887, in Book K. 36, page 384 of transfers of patents, made a contract whereby said Venable and Lowndes acquired a two-thirds interest in the registered label of "Coca-Cola Syrup and Extract", and certain relations were established between said parties:

And whereas said written contract has been modified by said parties, so as to make the twelve hundred dollars advanced by Venable and Lowndes, payable out of the general profits of the business, and after the same shall have been paid then the said Pemberton to draw his portion of profit monthly, and whereas said Pemberton on the 13th of December, 1887, gave his written consent that said Venable and Lowndes might sell and transfer their interest in said contract as modified and subrogate the purchasers to their rights thereunder; and whereas Mrs. M. C. Dozier and W. Walker are desirous of purchasing the interest of said Venable and Lowndes in said contract (one

third thereof by Mrs. Dozier and the remainder by Walker.) Now in consideration of the sum of twelve hundred dollars to said Venable and Lowndes by said Mrs. Dozier and Walker in hand paid, the said Venable and Lowndes do hereby transfer, assign and set over to said Mrs. Dozier and Walker, all their interest in said contract, except the material and fixtures, and subrogate them to all their rights under said contract as modified.

And they further agree to sell their interest in said material and fixtures on the basis named in said contract.

The said Mrs. Dozier and Walker assume the obligations of Venable and Lowndes under said contract and agree to take and pay for said material and fixtures on the basis named. This agreement is executed in triplicate, so that J. S. Pemberton may have one copy, Venable and Lowndes one, and Mrs. Dozier and Walker one, this December 14, 1887.

W. E. VENABLE.
GEO. S. LOWNDES.
WOOLFOLK WALKER.
MRS. M. C. DOZIER.

Witness:
A. F. HOWELL.

RECEIVED for record June 5, 1891, and recorded in Liber H 43, page 311, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

Patent Office, United States of America.

Exd. A. J. J.

Georgia }
Fulton Co. }

Whereas, we, Woolfolk Walker and Mrs. M. C. Dozier, of said State and county, are the owners of two-thirds interest in and to a formula for Coca Cola Syrup and Extract, and also a label under the name of and title of Coca Cola Syrup and Extract, which label under said name was on the 28th day of June, 1887, duly registered in the United States patent office, being No. 5272, by Dr. J. S. Pemberton — we having bought said two-thirds interest from W. E. Venable and G. S. Lownds, they having bought from said J. S. Pemberton, now for and in consideration of the sum of seven hundred and fifty——dollars to us in hand paid the receipt whereof is hereby acknowledged we hereby grant, bargain, sell and convey unto Asa G. Candler — his heirs and assigns one-half interest in and to the two-thirds interest which we now possess obtained by us as aforesaid

said registered label and formula for Coca Cola Syrup Extract. This instrument conveys one-half the entire erest which we have (two-thirds) in said label and for-la our interests being taken as a whole — so as to give he said Asa G. Candler one-third of the entire property aid label and formula.

n witness whereof the said Mrs. M. C. Dozier and Wool- Walker have hereto set their hands and seals this the n day of April, 1888.

WOOLFOLK WALKER (L. S.)
MRS. M. C. DOZIER (L. S.)

n presence of:
(Witness) F. M. ROBINSON.

ECEIVED for record June 5, 1891, and recorded in er H 43, page 311, of Transfers of Patents.

N TESTIMONY WHEREOF I have caused the seal of Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

xd. A. J. J.

atent Office, United States of America.

EX. E.

rgia }
ton Co. }

his instrument witnesseth that whereas Mrs. M. C. ier and W. Walker are the owners of a two-third inter-in and to the registered label of "Coca-Cola Syrup and ract", having acquired the same by purchase from W. Venable and George S. Lowndes on December the 14th, 7, (the said Mrs. M. C. Dozier owning one-third and the W. Walker owning two-thirds of said interest) the tract by which the said W. E. Venable and George S. ndes became owners of said two-thirds interest, having n made with John S. Pemberton on the 8th day of July, 7, and recorded in the office of the Commissioner of ents, Washington, D. C., on the 14th day of July, 1887, Book K, 36, Page 384 of Transfers of Patents.

Now, for and in consideration of the sum of one thousand ars ($1000.00) we hereby sell, transfer, assign and set r to Asa G. Candler all our right, title and interest in to said registered label "Coca-Cola Syrup and Ex-t", together with all of our interest in stock on hand, ounts, kettles for manufacturing said syrup, and any all property or right in any property connected there-h. The said Asa G. Candler having this day given his notes each for the sum of two hundred dollars 00.00) due respectively December 15, 1888, February 1889, March 15, 1889, April 15, 1889, and May 15, 1899,

bearing interest from date at 8 per cent. per annum.

In witness whereof we have hereunto set our hands and seals this August the 29th, 1888.

MRS. M. C. DOZIER (L. S.)
WOOLFOLK WALKER (L. S.)

(Witnesses):
A. J. COOPER.
S. H. LANDRUM, J. P.

EX. F.

Received for record, June 5, 1891, and recorded in Liber H 43, page 310, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

Exd. A. J. J.

Patent Office, United States of America.

Georgia, }
Fulton County. }

Know all men by these presents that we, J. S. Pemberton and C. Pemberton, of said State and County, have this day sold to Walker, Candler & Co., composed of Woolfolk Walker, A. G. Candler and Joseph Jacobs — all our right, title and interest in and to the patented syrup known as the Coca Cola — with all the appurtenances and rights thereto belonging — for the sum of five hundred and fifty dollars, fifty to be paid this day — and balance in City Acceptance at 30 days. This April 14th, 1888.

J. S. PEMBERTON.
C. N. PEMBERTON.

(Witness:) NORMAN SHARP.

EX. G.

RECEIVED for record June 5, 1891, and recorded in Liber H 43, page 313, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

Exd. A. J. J.

Patent Office, United States of America.

Atlanta, Ga., April 22-91.—189.

Georgia, }
Fulton County. }

This indenture made and entered into this the 22nd day of April, 1891, between "Walker, Candler & Co.," of the first part, and Asa G. Candler, of the second part, witnesseth, That whereas the said Asa G. Candler individually paid J. S. Pemberton the sum of Five Hundred and Fifty

Dollars, the consideration of a bill of sale to an undivided one-third interest in and to all the rights and appurtenances with copyrights, etc., etc., to the patented syrup known as COCA-COLA; and whereas it was understood at the time of said payment that said interest was to be by said Walker, Candler & Co. transferred to said Asa G. Candler—now this indenture is made in accordance with terms of agreement between aforesaid parties of same date as transfer by J. S. Pemberton and C. M. Pemberton to Walker, Candler & Co., viz.: April 14th, 1888, and for the same consideration as specified in transfer of J. S. Pemberton and C. M. Pemberton to said Walker, Candler & Co. — and they the said Walker, Candler & Co., do by these presents sell, release and resign to the said Asa G. Candler all their rights, title and interest in the patented syrup known as COCA-COLA — with all the appurtenances, rights and titles thereto belonging.

In witness thereof the said Walker, Candler & Co. have hereto set their hands and affixed their seals this April 22, 1891.

WALKER, CANDLER & CO.
Per JOS. JACOBS.

(Witness:)
W. R. MORRIS.

RECEIVED for record April 23d, 1892, and recorded in Liber U, 45, page 415, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

W. E. SIMONDS,
Commissioner of Patents.

Exd. F. C. T.

Patent Office, United States of America.

Georgia, }
Fulton County. }

Know all men by these presents, that I, Asa G. Candler, for and in consideration of five hundred (500) shares of the capital stock of the Coca-Cola Company (a corporation under the laws of said State) of the par value of One Hundred Dollars ($100) per share do hereby transfer, sell and assign to the said Coca-Cola Company, a corporation as aforesaid, all my rights, title and interest in and to the patent formula for the manufacture of the extract and syrup known as Coca-Cola, together with the rights and title to letters patent pertaining to Coca-Cola. Said formula and copyright being the same as that granted to J. S. Pemberton on the 28th day of June, 1887, and recorded in the Patent Office at Washington, D. C., in Liber K 36, page 384, designated in said record as Number 5272 — together with all the printed and advertising matter, crude and

manufactured material necessary to the proper manufacture and sale of said goods in my possession at this date; a schedule of all of said furniture, stock, advertising matter, etc., is hereunto attached and is hereby made a part of this instrument.

ASA G. CANDLER.

Signed in presence of — } G. W. LITTLE.
This February 22, 1892. } J. B. BROOKS.

E. C. C.

UNITED STATES PATENT OFFICE.

COCA-COLA CO. *v.* BEERMANN *v.* KENT.

TRADE-MARK FOR TONIC. — No. 15,753.

Application of Coca-Cola Co. filed May 14, 1892.
Application of Beermann filed Feb. 12, 1892. Reg. 20,818.
Application of Kent filed Nov. 21, 1888. Reg. 16,209.
Messrs, Lehmann, Pattison & Nesbit, Attorneys for Coca-Cola Co.
Messrs. Munn & Co., Attorneys for Beermann.
Mr. J. F. Kerr, Attorney for Kent.

This is an interference between Kent, the registrant of the trade-mark Coca-Cola; Beermann, the registrant of the trade-mark Co-Co-Colian, and the application of the Coca-Cola Co. for the registration of the trade-mark Coca-Cola.

Beermann filed his application Feb. 12, 1892, and his certificate issued March 8, 1892. In his statement he alleged continuous use since January 1, 1892. He took no testimony and as this date is long subsequent to the registration by Kent, he, Beermann, need not be further considered.

Testimony was taken both by Kent and the Coca-Cola Co. on Oct. 11, 1892, a motion was made on behalf of the Coca-Cola Co. among other things "That all testimony in behalf of Benjamin Kent tending to establish a date prior to the 1st of June, 1888, be eliminated from the record on the ground that, as the above date is the date set up by him under oath in his letters of registration, as the time at which he began a continuous use of the mark in question, he is held thereto in this interference proceeding". On Nov. 3, 1892, the examiner of interferences passed upon this part of the motion as follows: "It seems very plain to the examiner that the first branch of this motion ought not to be heard upon its merits or determined by him prior to the final hearing of the case, and he does hereby refuse to consider that branch of the motion". Under this order the above motion of the Coca-Cola Co. comes up for determination.

By the Act of March 3, 1881, Sec. 1, relating to the Reg-

istration of Trade-Marks, an applicant is required to set forth in his statement "the length of time during which the trade-mark has been used". In compliance with this requirement Kent alleged continuous use in his business since June 1, 1888. In his testimony he attempted to set up the act of adoption and use as far back as 1884 or 1885. He brings one witness who testifies to the store use of the symbol Coca-Cola in 1885 and another who testifies to the same use in January or February, 1886. The Coca-Cola Co. contend that Kent should be restricted to the date alleged in his statement as to the date of adoption and should not be permitted to set up an earlier date. This contention must be supported in view of the present practice, which views a statement, made in connection with an application for the registration of a trade-mark, in the same light as a preliminary statement in an interference proceeding between two applications for patents for an invention. Le Page Mfg. Co. v. Russia Cement Co., 40 MS. C. D. 329. And as parties are strictly held in their proofs to the dates set up in a preliminary statement (Rule 110) the same restriction has been placed upon proofs in a contest as to prior adoption and use of a trade-mark, and the parties held strictly to the dates alleged in their statements filed with the application for registration. Rule 13, Rules Relating to the Registration of Trade-Marks. Browne on Trade Marks, 2 Ed. 1885, p. 625, S. 627. Such being the practice, Kent is not allowed an earlier date than June 1, 1888, the date alleged in his statement, as the date of adoption, and it is not necessary to consider the point raised by attorney for the Coca-Cola Co. that the use by Kent of the said symbol as a "store term" and on written labels, put upon bottles sold over his counter, did not amount to adoption and use. Kent being thus restricted, it becomes necessary for the Coca-Cola Co., upon whom is the burden of proof, to overcome the "prima facie evidence of ownership" existing in the registrant Kent by virtue of Sec. 7 of the statute of March 3, 1881. The statement in the application for registration of the Coca-Cola Co. alleges continuous use since June 28, 1887. It appears from the testimony that this date is the date of the registration of a label by one J. S. Pemberton, under the name of "Coca-Cola Syrup and Extract". Asa G. Candler, the President of the Coca-Cola Co., testifies that prior to the formation of said company on Feb. 22, 1892, he had acquired through several intermediate assignments the right to the label and the use of the word Coca-Cola; and that Pemberton, and his other privies in title had adopted and used the said word to designate a beverage continuously since the spring of 1886. The only

other witness, Robinson, testifies to the adoption and use by Pemberton of the word Coca-Cola to designate a beverage in the spring of 1886 and its continuous use since, and he gives a list of sales in the spring of 1887.

It is to be noted that the Coca-Cola Co. has offended as grievously as Kent in the infringement of Rule 13, by offering testimony to show adoption and use prior to the date alleged in their application statement. But while the Coca-Cola Co. cannot avail themselves of a date earlier than June 28, 1887, the testimony shows beyond any reasonable doubt that on said date the privies in title of the said company had adopted and used the symbol Coca-Cola as a trade mark. It follows, therefore, that judgment as to prior adoption and use must be and the same is hereby rendered in favor of the Coca-Cola Co. Limit of appeal will expire January 4, 1893.

WALTER JOHNSON,
Examiner of Interferences.

December 15, 1892.

Endorsed: Intf. No. 15,753, Paper No. 18. Coca-Cola Co. v. Beermann v. Kent. Decision of priority in favor of Coca-Cola Co., Dec. 15, 92. Filed Apl. 30, 1906. C. J. Murphy, C. C. C. U. S. Dist. S. C. Recorded, Vol. 42, p. 60.

IN THE CIRCUIT COURT OF THE UNITED STATES
IN AND FOR THE WESTERN DISTRICT
OF PENNSYLVANIA.

COCA-COLA COMPANY, a Corporation of the State of Georgia, and the COCA-COLA BOTTLING WORKS, of Pittsburg, a Corporation of the State of Tennessee,

vs.

E. S. FRISHKORN, a citizen of the State of Pennsylvania.

No. 31,
Nov. Term, 1906.
In Equity.

DECREE PRO CONFESSO.

This case having been brought on for hearing, and it appearing that defendant was duly served with process on the 11th day of November, 1906; that the defendant having failed to appear and having failed to plead, answer or demur, an order for a decree pro confesso was duly entered on the 6th day of January, 1907; that more than thirty days have passed since the entry of said order; the court thereupon adjudges and decrees that complainant herein, Coca-Cola Company is the owner and proprietor of a good and valid trade mark for beverages, consisting of the term

or designation "Coca-Cola"; and that the Coca-Cola Bottling Works, of Pittsburgh, complainant herein, is licensee from the said Coca-Cola Company for the territory surrounding and including the City of Pittsburgh, Pa., respecting such trade-mark rights; and that the parties complainant herein have an established business in preparing and dispensing beverages; and that the appearance of their product when put upon the market is characteristic, and as such recognized by the trade as the product of these complainants; and that the defendant herein, in dealing in a bottled drink under the name or designation "Toca-Coca" is infringing upon the aforesaid trade-mark rights of these complainants, and in putting such product on the market in the form exemplified by the exhibits in this case, is engaged in unlawful competition.

It is further ordered, adjudged and decreed that the defendant, said E. S. Fishkorn, his agents, servants and workmen be, and hereby are, enjoined from further infringing complainants' trade-mark, and from dealing in bottled beverages which in appearance so nearly resemble complainants' product so as to cause confusion in the trade; and specifically from bottling, selling or dispensing a beverage under the name "Toca-Coca", or in the form exemplified in the Exhibits herein.

Per CURIAM.

Feby. 13, 1907.

United States of America,
Western District of Pennsylvania.

I, H. D. GAMBLE, Clerk of the Circuit Court of the United States, for the Western District of Pennsylvania, in the Third Circuit, do hereby certify the foregoing to be a true copy of the original Decree, Pro Confesso, filed February 13, 1907, in suit of Coca-Cola Company and Coca-Cola Bottling Works of Pittsburgh, Pa., complainants, versus E. S. Frishkorn, respondent, at No. 31 of Nov. Term, 1906, in equity, on file, and now remaining among the records of the said court, in said Clerk's office.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the seal of the said Court, at Pittsburgh, in said District, this 25th day of March, in the year of our Lord one thousand nine hundred and ten, and of the independence of the United States the one hundred and thirty-fourth.

H. D. GAMBLE,
Clerk U. S. Circuit Court.

(SEAL)

IN THE CIRCUIT COURT OF THE UNITED STATES,
NORTHERN DISTRICT OF ILLINOIS,
EASTERN DIVISION.

FRIDAY, OCTOBER 9TH, 1908.

Present: HONORABLE WILLIAM H. SEAMAN, Circuit Judge.

COCA-COLA COMPANY, a Corporation,
vs.
MAX JACOBS and HARRY RACUSIN and IKE MICHELSON, trading as the Western Bottling Works. } 29196.

This cause coming on to be heard it is, by consent of the parties, hereby adjudged, ordered and decreed as follows:

FIRST. That Coca-Cola Company, the complainant herein, is the sole and exclusive owner of a secret process for the manufacture of a certain beverage which ever since complainant's incorporation and for a long time previously by its predecessor, has been and is termed and known by the trade name of "Coca-Cola"; that said beverage has been generally and exclusively sold throughout the United States, including the State of Illinois, by its said trade name of "Coca-Cola" and has been extensively and exclusively advertised by such name, whereby said beverage has come to be known to the public by its said trade name of "Coca-Cola"; that by virtue of its character and its long continued and exclusive use by the complainant and its predecessor in business, the said name "Coca-Cola" has come to signify in the trade that the beverage bearing said name is the product of the complainant; that the complainant and its predecessor by the adoption of and long use of the word "Coca-Cola" to designate the said beverage manufactured and sold by it and the registration of the said fanciful compounded word "Coca-Cola" in the United States Patent Office, as a trade mark to designate its goods on Jan. 31, 1893, certificate No. 22, 406, and the re-registration in the United States Patent Office of the same compounded word on Oct. 31, 1905, certificate No. 47,189, became the sole and exclusive owner of the use of said compounded words "Coca-Cola" as a trade mark to designate the said beverage manufactured and sold by it and for a long time known to the trade by the trade name "Coca-Cola".

That the defendants, Harry Racusin and Ike Michelson, trading as the Western Bottling Works, have heretofore marketed a beverage under the name "Kos-Kola" of the same general color and appearance as complainant's "Coca-Cola", placing the same in bottles of the same general size and form and sealed with a metal cap, all closely resembling in appearance the bottles and the bottled bev-

erage "Coca-Cola", as placed upon the market by the authorized bottlers of the complainant; that the defendant Max Jacobs, through his employes, has sold said so-called "Kos-Kola" in various theatres and other places in Chicago where he has a concession, for sale of articles of this kind, both in bottles and in glasses; that in offering said spurious beverage, "Kos-Kola" for sale in the bottles and in glasses as aforesaid, the vendors, the employes of said Max Jacobs, call out and announce the sale of "Coca-Cola" and other like terms, so closely resembling in sound the words "Coca-Cola", as to lead purchasers to believe they are purchasing the complainant's said beverage "Coca-Cola".

It is therefore further adjudged and decreed, that the defendants, Max Jacobs and also Harry Racusin and Ike Michelson, trading as the Western Bottling Works, they and each of them and each of their agents, attorneys, workmen, employes and representatives are hereby enjoined from directly or indirectly manufacturing, bottling or selling or offering for sale, proclaiming or announcing for sale any beverage whether bottled or in the glass as "Coca-Cola", "Kos-Kola", "Cold-Cola", or by any other name, term or expression so similar in sound or in appearance as to lead purchasers to believe that they are purchasing the beverage known as "Coca-Cola", manufactured by and the product of the complainant herein or from in any manner infringing upon the trade name or the trade rights of the complainant, and diverting or seeking to divert to them or either of them, sales that would otherwise come to the complainant and its representatives or aid said defendants or either of them in consummating sales by inducing purchasers to believe that they are purchasing the complainant's goods.

The complainant having admitted in open court that the defendants have made full settlement and satisfaction for all damages, savings and profits on account of their said infringement of said trade mark and their unfair competition with complainant's business in the manufacture and sale of said beverage, and also of all costs on account of this litigation, a reference to a Master is waived by the complainant herein and this decree is hereby made perpetual and final without costs from either party to the other.

United States of America,
Northern District of Illinois, } ss.
Eastern Division.

I, H. S. Stoddard, Clerk of the Circuit Court of the United States, for said Northern District of Illinois, do hereby certify the above and foregoing to be a true and

complete copy of the certain Decree entered of record in said Court on the Ninth day of October, A. D. 1908, in the cause wherein COCA-COLA COMPANY is the complainant and MAX JACOBS, ET AL., ETC., are the defendants, as the same appears from the original record and files in said cause now remaining in my custody and control.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Court at my office in Chicago, in said District, this Twenty-fifth day of March, A. D. 1910.

(SEAL) H. S. STODDARD, Clerk.
By JOHN H. R. JAMAR, Chief Deputy.

UNITED STATES OF AMERICA.
CIRCUIT COURT OF THE UNITED STATES.
Fifth Circuit and Eastern District of Louisiana.
November Term, A. D. 1906.

New Orleans, Saturday, 5th day of January, 1907.

Court met pursuant to adjournment.

Present: The Honorable Charles Parlange, District Judge.

The Coca-Cola Company,
vs.
A. L. Pilsbury, Jr.
No. 13405.

EXTRACT FROM THE MINUTES:

This cause came on to be heard this day, when:

Considering the joint motion of Counsel for Complainant and for Defendant, and the stipulation and agreement therein, all on file herein, and in accordance therewith:

IT IS ORDERED, ADJUDGED AND DECREED: That the preliminary injunction herein issued, in favor of Complainant and against the Defendant, enjoining the Complainant —

> "from manufacturing, preparing, selling or supplying "others for sale, any drink, syrup or extract under the "mark, symbol or name of 'Ko-Kola', or other device "identical with or like Coca-Cola; or from using any "other name or device calculated to induce the public "to believe that the drink, syrup or extract of defend- "ant is the same as Coca-Cola", —

be maintained and perpetuated; and that the demand of your orator for damages herein be dismissed, as having been compromised; and that the appointment of the Master herein, to hear evidence, etc., be revoked, as no longer necessary.

Decree rendered and signed in Open Court this (5th) Fifth Day of January, A. D. 1907.

(Signed) CHARLES PARLANGE,
U. S. Judge.

CLERK'S OFFICE:

I certify the foregoing to be a true copy from the original record in this office.

Witness my hand and seal of said court at the City of New Orleans, this 31st day of March, 1910.

H. J. CARTER, Clerk.

Endorsed: No. 13405. United States Circuit Court. The Coca-Cola Co. versus A. L. Pilsbury, Jr. Copy of Decree.

UNITED STATES OF AMERICA.
CIRCUIT COURT OF THE UNITED STATES.
Fifth Circuit and Eastern District of Louisiana.
November Term, A. D. 1906.
New Orleans, Saturday, 5th day of January, 1907.

Court met pursuant to adjournment.

Present: The Honorable Charles Parlange, District Judge.

The Coca-Cola Company,
vs.
he American Bottling Works. } No 13406.

EXTRACT FROM THE MINUTES.

This cause came on to be heard this day, when:

Considering the joint motion of Counsel for Complainant and for Defendant, and the stipulation and agreement therein, all on file herein, and in accordance therewith:

IT IS ORDERED, ADJUDGED AND DECREED: That the preliminary injunction herein issued in favor of Complainant and against the Defendant, enjoining the Complainant —

"from any further use of the mark or symbol 'Ko-
"Kola', or any bottled drink similar to the bottled
"drink known as 'Coca-Cola', manufactured by the
"Complainant, as described in the Bill of Complaint
"herein, or from in any other manner infringing upon
"the trade mark or trade rights of the Complainant"—

be maintained and perpetuated; and that the demand of your orator for damages herein be dismissed, as having been compromised; and that the appointment of the Master herein, to hear evidence, etc., be revoked as no longer necessary.

Decree rendered and signed in open court on this (5th) Fifth day of January, A. D. 1907.

(Signed) CHARLES PARLANGE,
U. S. Judge.

CLERK'S OFFICE:

I certify the foregoing to be a true copy from the original record in this office.

Witness, my hand and seal of said Court, at the City of New Orleans, this 31st day of March, 1910.

(Seal) H. J. CARTER, Clerk.

Endorsed: No. 13406. United States Circuit Court. The Coca-Cola Co. versus The American Bottling Works. Copy of Decree.

THE UNITED STATES OF AMERICA.
DISTRICT OF SOUTH CAROLINA.
IN THE CIRCUIT COURT, FOURTH CIRCUIT.
IN EQUITY.

COCA-COLA COMPANY and the COCA-COLA BOTTLING COMPANY, Complainants,
vs.
E. B. DONALD and H. G. BAILEY, Defendants.

This cause came on to be heard at this term after due notice to Counsel. After hearing Counsel for Complainants and considering the Report of the Standing Master filed in the case, it is

ORDERED AND DECREED, That said Report be in all respects confirmed and stand as the judgment and decree of this Court.

IT IS FURTHER ORDERED, That the Complainants pay to Julius H. Heyward, Standing Master, One Hundred Dollars ($100.00) for his fee in this case, and ———— Dollars costs of the court, for which sums in turn the Complainants shall have judgment against the Defendants, all to be enforced by execution on application therefor.

WM. H. BRAWLEY, U. S. Judge.

I, C. J. Murphy, Clerk of the said Court, do hereby certify that the foregoing Decree is a true copy of the original now on file in my office.

Given under my hand and seal of said Court, at Charleston, S. C., this the 4th day of June, A. D. 1906.

C. J. MURPHY,

(Seal) C. C. C. U. S. Dist. S. C.

Endorsed: The United States of America. District of South Carolina. In the Circuit Court. Fourth Circuit. In Equity. Coca-Cola Company and Coca-Cola Bottling Company, Complainants, vs. E. B. Donald and H. G. Bailey, Defendants. Decree. Filed June 4, 1906. C. J. Murphy, C. C. C. U. S. Dist. S. C.

UNITED STATES OF AMERICA.
DISTRICT OF SOUTH CAROLINA.
CIRCUIT COURT IN EQUITY.

THE COCA-COLA COMPANY and THE COCA-COLA BOTTLING COMPANY, Complainants,
against
H. G. BAILEY and E. B. DONALD,
Defendants.

REPORT OF STANDING MASTER.

TO THE HONORABLE, THE JUDGES OF SAID COURT:

This is a suit for injunction and for damages for the unlawful use of a trade-mark to which the complainants claim the exclusive right.

The bill alleges that the complainant, "The Coca-Cola Company", is the owner of a trade-mark consisting of the compound, coined word "Coca-Cola"; that under said trade-mark the said complainant and its predecessors have, since the year 1887 to the present time, been selling a beverage, the component parts of which are a trade secret belonging to said complainant, and compounded by said complainant only; that this compound is known as "Coca-Cola syrup", and under said trade-mark, is sold in foreign countries, as well as in trade with the Indian tribes, and in commerce among the State of the Union; that this trade-mark was duly registered by said complainant in the proper office in the City of Washington, on the 31st day of January, 1893; that on July 21, 1899, said complainant assigned, with certain reservations and conditions, to J. B. Whitehead and B. F. Thomas, the exclusive right to prepare and sell the beverage made from the said ingredients prepared by said "Coca-Cola Company", and the right to use, in said business, the said trade-mark "Coca-Cola"; that subsequently the said Whitehead and Thomas conveyed their said rights with the assent of the said Coca-Cola Company, to the copmlainant, The Coca-Cola Bottling Company, who now have the exclusive right to prepare, bottle and sell, under said trade-mark, the said beverage known as Coca-Cola, within the territory specified in said assignment, including the State of South Carolina; that said business has assumed large proportions and is very profitable; that the defendants, under the name of the Union Bottling Company, have engaged (presumably at Union in the State of South Carolina) in manufacturing and selling to the public an inferior liquid, similar to said Coca-Cola, put up in bottles, bearing labels upon which is printed the word "Coca-Cola", in violation of the rights of complainants; that demand has been made upon defendants to stop said violation and infringement upon the rights of complain-

ants, which demand has been refused.

WHEREFORE, etc.

The prayer is for injunction and damages.

The answer practically admits the use of labels upon which are printed the words Coca-Cola, but denies any intentional violation of any rights of the complainants, denies that as a matter of fact they have damaged the complainants by the use of said labels, and denies the right of the complainants to enjoin the defendants from further carrying on their said business.

As to the other allegation, the defendants deny that they have any knowledge, and demand proof of the same, upon the filing of the answer, and upon notice to the defendants, a preliminary injunction was granted prohibiting the defendants to use the labels containing the symbol "Coca-Cola", until the further order of the Court.

The cause having been reported to me to take the testimony and report upon the issues, I have taken the testimony which is herewith filed and upon the same respectfully report as follows: No one appeared before me for defendants.

I find as matter of fact:

That the coined word "Coca-Cola" has been in use as a trade-mark since the year 1887, and was only registered on January 31, 1893.

That said trade-mark and the right to use the same have passed through several successive hands to the complainant, The Coca-Cola Company, who is now, and was at the time of the filing of the bill herein, the owner of the same.

That the complainant, The Coca-Cola Bottling Company, has the exclusive right to the use of said trade-mark in the State of South Carolina.

That the defendants were, at the time of the commencement of this suit, and until the service of the order of injunction, herein engaged in selling a beverage similar to that made by the complainants, but inferior thereto in quality, and put up in bottles upon which was pasted a label with the word "Coca-Cola" printed thereon.

That said business was conducted and said labels used without authority from the complainants or either of them, and was necessarily injurious to their business.

That the defendants were, before the commencement of this suit, requested to desist from the use of said label, but said request was refused.

That the profits realized by defendants from the use of said label amounted to the sum of about One Hundred and Twenty-Five Dollars.

At common law, a trade-mark was recognized and pro-

tected by the courts before the formation of the government of the United States. The jurisdiction was based upon the theory of protection of the public from imposition and fraud and protection of the owner of the trade-mark from "unfair competition". The remedy was in damages, and for a long time the Courts of Equity refused to grant an injunction in such a case, holding that there was an adequate remedy at law. It was not until the time of Mansfield that injunction was allowed. In the meantime several of the States of the American Union enacted laws for the protection of trade-marks, some of which differ materially from others. No attempt was made by the Congress of the United States to pass such a law, however, until the year 1870, when an act was passed entitled "An act to revise, consolidate and amend the Statutes relating to patents and copy-rights", part of which provided for the registration of trade-marks, and appears in the Revised Statutes as Secs. 4937 to 4947 inclusive. This was followed by the act of 1876, which made it a criminal offence to counterfeit "trade-mark goods", or to "use or deal in trade-mark goods", the trade-mark thereon having been duly registered. Both of these Acts were held by the Supreme Court, in the case of U. S. v. Stiffins, to be unconstitutional and void, upon the ground that Congress has no constitutional right to deal with any matter of trade, except such as related to commerce with foreign countries, or the Indian tribes, or among the States of the Union, and that the Acts in question undertook "to establish a universal system of trade-mark registration for the benefit of all, etc., without regard to the character of the trade", etc., (100 U. S. 550; U. S. v. Koch, 40 Fed. 250).

In the year 1881 Congress passed an Act entitled "An Act to authorize the registration of trade-marks and protect the same (21 Stats. at Large, 502). This Act is confined, however, to trade-marks used in foreign commerce or commerce with the Indians. By the Act of 1882 (22 Stats. at Large, 298), its provisions were extended to trade-marks used in such commerce at the time of the passage of the Act of 1881. In 1905 an Act was passed entitled "An Act to authorize the registration of trade-marks used in commerce, foreign nations, or among the several States, or with Indian tribes, and to protect the same". (33 Stats. at Large, 724). Both the Act of 1881 and that of 1905 contain clauses saving to the owner of a trade-mark any rights he may have at Common Law or in Equity. The trade-mark in this case was adopted in 1898 and registered in 1893. Had it not been shown that it was used in foreign commerce and commerce with the Indian tribes, a question

might have arisen as to the validity of the registration, inasmuch as the Act of 1881 does not provide for the registration of trade-mark used in commerce among the States. The evidence shows, however, that this trade-mark is used in foreign commerce and commerce with the Indian tribes, and to that extent, is, no doubt, conclusive as to the registration as far as it goes. But the infringement complained of, occurred within the limits of one of the States. The registration of a trade-mark used solely in commerce among the States.

Can the Act of 1905, which includes such cases, be applied to a registration made before that Act was passed?

I assume that I am not required to answer this question, if it be necessary that it should be answered, and therefore leave it for the consideration of the court.

There is no doubt that aside from the provisions of the registration Acts, the complainant has a right at Common Law, or in this Court, at the present time, to a remedy upon the case as established by the evidence. Unfair competition has always been good ground for relief either at law or in equity, and the proof here is clear that the defendants have been engaged in selling an inferior article under a label bearing a symbol or word so nearly resembling the trade-mark of complainant, as to deceive the public and injure the business and reputation of the complainants. Under such circumstances, proof of fradulent intent is not necessary. (McLean vs. Fleming, 96 U. S. 245; Menendez vs. Holt, 128 U. S. 514; Amoskeag Mfg. Co. vs. Trainer, 101 U. S. 63.)

These cases show that the complainants are entitled to a perpetual injunction.

As to damages, it appears from the evidence, that the defendants are financially irresponsible. This cannot, however, deprive the complainants of their right to a judgment, if they are otherwise entitled thereto. In this court, complainants are entitled to an injunction and an accounting for profits made by defendants in the unlawful business, but not to vindictive or exemplary damages. (Taylor vs. Carpenter, 11 Page Ch., 293, 2 Sand. Ch. 903; Hennessy vs. Wilmerding-Loewe Co., 103 Fed. Rep. 90.) Defendants have admitted under oath, that they made a profit of One Hundred and Twenty-Five Dollars on the sales of their compound under the spurious label "Coca-Cola." For this amount the complainants are entitled to judgment as actual damages. Counsel for the complainants has announced that they claim no more, and are willing to pay the costs of Court and fees of Standing Master if not collected from the defendants.

I find as matter of law:

That the complainants are entitled to a perpetual injunction against the use by the defendant of the spurious trade-mark "Coca-Cola" heretofore used by defendants.

That the complainants are further entitled to judgment against the defendants for the sum of One Hundred and Twenty-Five Dollars and costs.

That the defendants being financially irresponsible, the complainants should be required (and have expressed their willingness) to pay the costs and expenses of this suit.

All of which is respectfully submitted.

JULIUS H. HEYWARD,
Standing Master.

Greeneville, S. C.,
April 27, 1906.

I, C. J. Murphy, Clerk of the said Court, do hereby certify that the foregoing Report is a true copy of the original now on file in my office.

Given under my hand and seal of said Court, at Charleston, S. C., this the 30th day of April, A. D., 1906.

(Seal) C. J. MURPHY,
C. C. C. U. S. Dist. S. C.

Endorsed: United States of America, District of South Carolina, Fourth Circuit. In the Circuit Court. The Coca-Cola Company Complainants, against H. C. Bailey et al, defendants. Report of Julius H. Hayward, Standing Master. Entered on Journal, Page. Filed 30 day of April, 1906. C. J. Murphy, C. C. C. U. S. Dist. of S. C.

Chattanooga, Tennessee,
Thursday, March 23, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances, same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED:
DR. JOHN WILLIAM MALLET,
resumed the stand for further examination:

DIRECT EXAMINATION, Continued,
BY MR. HIRSCH:

Q. I believe yesterday you stated where you had obtained the samples which you analyzed.

A. Yes, sir.

Q. Could you state the results of your analyses of those samples?

A. Yes, sir; I can read you out the figures if you wish, but I have it in printed form, and it would probably save you a little time.

(The witness passed his answer to counsel and jurors, and it was as follows:)

ANALYSES OF COCA-COLA SYRUP.

	Fountain syrup from Chattanooga Sp. gr. at 15° C. equals 1.259. Reaction strongly acid.	Fountain syrup purchased at Charlotteville. Sp. gr. at 15° C. equals 1.257. Reaction strongly acid.	Bottlers' syrup from Chattanooga Sp. gr. at 15° C. equals 1.287. Reaction strongly acid.
Sugar (chiefly sucrose and invert sugar—calculated as sucrose)	52.64	52.51	58.26
Caffeine (with a minute amount of theobromine)	.21	.21	.19
Phosphoric acid (H_3PO_4)	.27	.25	.30
Citric acid	.03	.03	.04
Tannin and extractive matter, caramel, glycerine, etc., (by difference)	3.55	3.42	4.25
Mineral matter (ash), other than phosphoric acid	.07	.06	.09
Alcohol	.60	.57	(.53)
Water	42.63	42.95	(36.34) with minute amount of essential oils.
	100.	100.	100.

J. W. MALLET.

Q. Did you find any oils present in these samples?

A. There was evidence of the presence of a small quantity of essential oils, as they are called.

Q. Could you determine the quantity of oil present?

A. No, sir; the amount was too minute.

Q. How did you know they were present?

A. From the odor.

Mr. Miller: From what?

The Witness: From the odor, the smell.

BY MR. HIRSCH:

Q. Have you made any analyses to determine the amount of caffeine that is present in an ordinary cup of coffee or tea?

A. Yes, sir.

Q. What was the result?

A. Perhaps I should state in advance what the analyses were.

Q. State fully.

A. I have the ordinary infusion of tea and coffee prepared in my own household as we commonly used it. Of

course, there is a considerable variation in different strength of the infusion prepared. I, myself, gave instructions that they should be prepared as they ordinarily were, without any divergence from our ordinary practice. There were three samples and the results that were given, I have them in printed form and they can be distributed.

Mr. Miller: Just a moment. I wish to interpose an objection to the analyses of tea and coffee, first because it is irrelevant, and secondly because he says there is such a variation in the quantity used, and this is as he uses it in his household. I submit that is not sufficiently connected with this case or akin to it to be of material value.

The Court: Before introducing this, you may ask the witness about how the coffee was prepared in his family, the strength of the coffee and the tea as he observed it. An far as the first ground of objection is concerned, I overrule it.

BY MR. HIRSCH:

Q. You have traveled around a good deal, have you, Doctor?

A. Yes, sir.

Q. State how the strength of the coffee and tea as you usually found it in your travels, compared with that you are about to describe that was used in your own household.

A. I think the tea was about the average strength, as far as I could judge. The coffee was also quite within the range of ordinary use, but probably stronger than most generally used. We like coffee rather strong, though not extraordinarily so.

Q. Now, I will ask the Doctor —

Mr. Miller: And we object.

The Court: The exception is overruled.

The Witness: To make the table intelligible, I had better state just what was analyzed. In the winter, we generally use ordinary hot tea, which is black Ceylon tea. In the summer, we use a good deal of iced tea which is prepared hot and poured over the ice. That was Japan green tea. The coffee was sold as Bogota coffee, but I am reasonably sure was Brazillian coffee. The tea was prepared the used way by pouring hot water over the tea leaves. The coffee was a drip coffee, percolated, the hot water poured over the coffee and allowed to filter through. The other two analyses of Coca-Cola syrup speak for themselves. They were the ordinary drink used at the soda fountains and also the bottled goods. With this explanation, the figures speak for themselves. I simply determined in each case the quantity of caffeine present in a cup, and as cups vary

in size, I defined the size. The hot tea was drank from an ordinary size breakfast cup, which I found in the case of my own household, held five fluid ounces, as usually filled. The cold tea was drunk from glasses of considerably larger size, and the amount of liquid over and above the ice, not taking into account the ice — the space occupied by the ice — was eight fluid ounces. The coffee as taken in the morning, was mixed with hot milk in the proportion of three parts by bulk of coffee infusion to two parts of milk. The after dinner coffee was drunk from smaller cups. The morning breakfast cups were the same as for the tea, and the after dinner cups, taken without milk or sugar, and the cups held two fluid ounces, and I have here the results printed.

(The witness here passed the answer to the jury and the counsel and it was as follows:)

RELATIVE QUANTITIES OF CAFFEINE IN TEA, COFFEE AND COCA-COLA.

		Grains of Caffeine
Black tea— hot	1 cupful (-5 fl. ox.) contained.	1.54
Green tea— cold	1 glassful (-8 fl.oz. exclusive of ice) contained.	2.02
Coffee— with hot milk	1 cupful (-5 fl. oz., 3/5 coffee, 2/5 milk) contained.	2.61
Coffee— "black"	1 after dinner cupful (-2 fl. oz.,) contained.	1.74
Coca-Cola ("Fountain")	1 drink (-1 fl. oz. syrup) contained.	1.21
Coca-Cola ("Bottlers")	1 drink (- fl. oz. syrup) contained.	1.12

J. W. MALLET.

BY MR. HIRSCH:

Q. I notice at the bottom, Coca-Cola, Fountain and Bottlers. Did you make analyses of the one you purchased in the open market at Charlotteville, Coca-Cola Syrup?

A. I shall have to refer to my book for that. I think that was the one.

(After reference.)

Yes, I cannot tell you positively whether the sample was the one purchased to open market, but the results were the same with that as with the sample sent from Chattanooga.

Q. Have you seen what is called here Merchandise No. 5 manufactured?

A. Yes, sir.

Q. Whereabouts?

A. At Maywood, New Jersey.

Q. Can you tell me the materials that were used in the manufacture of No. 5?

A. Yes, sir.

Q. Would you do so?

A. The material entering into the composition of No. 5 are three in number, the coca leaves previously deprived of their cocaine, the associated alkaloids, cola nut and wine, dilute alcohol in the form of wine.

Q. Can you tell me approximately how much coca leaves and cola nuts were used?

A. I cannot tell you accurately, but there were several hundred pounds used to each batch of nine hundred gallons of the product, and the nine hundred gallons is again only approximate.

Q. Do you know about what proportion of the coca leaves and cola nuts were used?

A. Roughly speaking, about three times of the coca leaves as of the cola nuts.

Q. Have you received a sample of this number 5, and if so, from what place?

A. I received a sample of it from Atlanta, from the factory, and I also took a sample at Maywood of that which I saw prepared, and I also prepared a sample myself, following the process of manufacture used in Maywood, but on a smaller scale, a laboratory scale.

Q. Did you compare these three samples?

A. I did.

Q. With what results?

A. They were undistinguishable by general observation.

Q. Did you make any tests of the constituents of No. 5?

A. Yes, sir.

Q. With what results?

A. My attention was drawn especially to those constituents by which it could be recognized as being derived from the coca leaves and cola nuts. There were many substances, more or less, indeterminate in character, but the most important substance was the peculiar tannin or a substance derived from tannin resident in the coca leaf, and the caffeine and theobromine derived from the cola nut.

Q. You heard Howard Candler's testimony?

A. Yes, sir.

Q. He said he sent you two samples from Atlanta?

A. Yes, sir.

Q. Did you make any test in regard to those samples, and if so, state how those tests were made.

A. Those two samples purporting to be, the one the regular fountain Coca-Cola syrup; the other, the same thing with the omission of the material known as Merchandise No. 5, were sent to me at my request, and the immediate object was to determine whether a different taste or flavor could be perceived due to the omission of Merchandise No. 5. The second sample, however, the one of the regular syrup, was also used for comparison with the Maywood sample, and the one prepared by myself that I referred to a moment ago.

Q. How did you test to see if there was any difference of flavor in the samples?

A. I diluted each of them with the same amount of water and tasted them and perceived a distinctly different flavor, other substances having a taste present in larger amount, sugar for example; the difference is of course not very great. I distrusted my own senses, feeling that I might fancy a difference where there was none, and I afterwards repeated the experiments in this form. I got a friend —

Mr. Miller: We object to that. That is evidently based on hearsay.

Mr. Hirsch: No, it is not.

The Court: It is difficult to determine as yet. Continue.

The Witness: I simply got a friend to hand me the two samples, I not seeing the bottles from which they were taken. He had diluted them — No, I had myself diluted them with water before to the required extent. I then tasted them and correctly named the samples, identified them as coming from the respective bottles.

BY MR. HIRSCH:

Q. Have you seen Coca-Cola manufactured?

A. Yes, sir; at Atlanta.

Q. Can you state whether No. 5 enters into Coca-Cola from having seen it manufactured?

A. Yes, sir; it is one of the ingredients.

Q. Did you hear Howard Candler's description as to how Coca-Cola was manufactured?

A. Yes, sir.

Q. Was that the way it was manufactured when you saw it?

A. Substantially. He said the caffeine — I think he was asked when the caffeine was introduced — and un-

derstood him to say either at the second or third kettleful of syrup. The one which I saw manufactured, it was introduced at the second kettle.

Q. Is caffeine a drug?

A. No, sir — well, it is a drug when used for medical purposes, but it is not always under all circumstances a drug.

Q. What experience have you had with the use of caffeine-containing beverages?

A. I have had my own experience, and general observation of others who use it, but my attention was particularly directed to it during the Civil war, as given to, or of necessity withheld from troops.

Q. What is the result of your experience both in yourself and during the war with the use of caffeine-containing beverages?

Mr. Miller: I object to that as being too general.

The Court: I think that exception is well taken. You can ask him about any particular experience.

BY MR. HIRSCH:

Q. Have you had any particular experience with the use of coffee yourself?

A. Ordinarily, the ordinary individual use.

Q. What quantities and how long?

A. You mean on myself?

Q. Yes.

A. I have generally taken from one to two cups of coffee a day.

Q. For how long?

A. Oh, for a great many years, forty or fifty years.

Q. Did you notice the use of it during the time you speak of during the Civil War period?

A. Yes, sir.

Mr. Hirsch: Now, I submit that I can ask him as to the results.

The Court:: Ask the question, and if there is no objection, he can answer it. If there is objection, I will rule on it.

BY MR. HIRSCH:

Q. What was your observation of the use of coffee during that time?

Mr. Miller: I object to that for the same reason given before.

Mr. Hirsch: The other day, a Doctor of Pharmacist was put on the stand and allowed to tell his observations in the use of Coca-Cola.

The Court: The exception is overruled.

A. Well, sir, the general result of my observation is that the use of caffeine or beverages containing caffeine in moderation, is not only not harmful but absolutely beneficial, sometimes very markedly so; and then, on the other hand, that excessive use of caffeine may undoubtedly give rise to discomfort and a certain amount of disturbance to health.

Q. Doctor, did you go through the entire Civil War?

A. Well, from October, 1861, to the end.

Q. Doctor, in your opinion is caffeine a habit-forming drug?

A. No, sir; not in the correct use of the expression "Habit-forming."

Q. I wish you would explain what you mean by "the correct use of the expression 'habit-forming.'"

A. I mean this sir. — that habits are of two kinds, anything we do repeatedly becomes in a sense a habit. What is generally understood by "habit-forming" drugs involves —

Mr. Miller. (Interrupting.) Now, as I understand, he can give his understanding, but I think the general understanding is as well understood by the jury as by him.

The Court: If the witness by "general understanding" means the general scientific meaning cast to that phase, he may answer. If he means the general popular understanding the answer would be improper. If technically used among scientific men, if he used it that way, he may state that.

The Witness: That is the sense in which I intended the expression to be used. In that sense the word or words imply three things, I think. In the first place, I think that the habit formed is a detrimental one, and an injurious one; and in the second place, that it is one which becomes so firmly fixed upon a person acquiring it that it is thrown off with great difficulty and with considerable suffering, or broken off, and in the third place, that the continued exercises of the habit increases the demand for the habit-forming drug.

BY MR. HIRSCH:

Q. Doctor, I will ask you this question: If you should take three samples from the same barrel of Coca-Cola and should use animal charcoal for the purpose of purifying the caffeine, would the results obtained as to the caffeine be the same.

Mr. Miller: I object to that; it is not pertinent here.

The Court: I do not see the bearing of that question.

Mr. Hirsch: That question Mr. Miller insisted on asking of Mr. Candler yesterday, and Doctor Fuller and Doc-

tor Emery testified they used animal charcoal. Both testified it changed, or they had a different result, and that question is to show if there is any reason why they would obtain different results or whether that was the correct method of obtaining the caffeine.

The Court: If that is your point, get directly to it; if that is the particular matter, you just ask him.

BY MR. HIRSCH:

Q. Doctor, is animal charcoal the proper method of getting the amount of caffeine in a given substance?

A. No, sir.

Q. Why not?

A. Because animal charcoal is used to remove coloring matter which it does by absorption and the absorption of the coloring matter is necessarily attendant with the absorption of considerable and variable amounts of the caffeine or other alkaloids.

Q. Can you account, Doctor Mallet, for the difference obtained in caffeine, say in caffeine contents by Doctor Fuller and Doctor Emery?

A. I can't say what difference there was in their particular analyses but I can say the method used was radically defective in that respect, and may have given rise to the difference.

Q. Doctor, did you make any tests regarding the appearance of the coca leaf and kola nut in Coca-Cola, and if so, state the results?

A. I confess I don't quite understand the question. You mean the materials that I saw at Maywood?

Q. Yes.

A. They presented the ordinary appearance commercially of coca leaves and kola nuts.

Q. Doctor, you testified as to your experience as to the use of coffee in the Civil War. State what that experience was.

Mr. Miller: I think he has certainly covered that. That would be merely cumulative; he stated that he saw it used throughout the War.

The Court: I understand he wants now to show to what extent.

The Witness: It amounts to this: As it is generally known, coffee was obtained with difficulty and to a very limited extent in the South during the Civil War, and I had repeated occasions to observe the difference in the condition of the troops which could be supplied with coffee, and those that were not given coffee.

BY MR. HIRSCH:

Q. What were those experiences?

A. A greater degree of energy — a readiness for action on the part of those troops who took coffee. If you wish a specific example, I can name one in that of the Battle of Williamsburg.

Mr. Miller: I object to that.

The Court: I think the objection is well taken; you could bring it out on cross-examination. That is simply a case of a specific instance.

BY MR. HIRSCH:

Q. At that time was there coffee for some soldiers and some who did not get coffee?

A. Yes, sir; that was the reason I mentioned that particular example, because on that occasion —

Mr. Miller: (Interrupting.) We object to it.

BY MR. HIRSCH:

Q. Do you drink tea in addition to the coffee?

A. Sometimes I drink it in addition to coffee but more especially in substitution for it; when I drink tea I do not drink coffee, and the reverse.

Q. Doctor, does Merchandise No. 5 have the odor of toluol?

A. No, sir.

Q. Could you detect the odor of toluol from Merchandise No. 5?

A. No, sir.

Mr. Hirsch: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Mr. Mallet, you are not a citizen of the United States, are you?

A. No, sir.

Q. You have not been naturalized?

A. No, sir.

Q. Now, you are or were, up until a short while ago, in the employ of one of the baking powder companies?

A. No, sir; I have made analyses on more than one occasion for one of the baking powder companies; I never have been in their employment continuously.

Q. Well, you speak scientifically or from a scientific standpoint, a moment ago, when you were defining a habit-forming drug?

A. Yes, sir.

Q. Well, you recognize the difference between a scien-

tific chemist or one who is engaged in chemistry from a scientific standpoint, and the commercial chemist, of course, don't you?

A. I don't know in what respect, sir — they have different objects in view, but as far as —

Q. (Interrupting.) Referring to these different objects, one of them is to try to ascertain the truth and delve into science, the other is trying to demonstrate whether or not a thing or substance is there present, that is a fact, is it?

A. Yes, sir.

Q. Didn't you, on behalf of one of the baking powder companies, write an article for publication in the Chemical News of London, purporting to be a scientific contribution to enlighten the world, when in fact you were paid for that contribution and it was placed in there at the suggestion of Mr. Hogan of the baking powder company?

A. No, sir. The contribution was written, the experiments were made and the results of them given actually as scientifically investigated on my own part.

Q. I know —

A. (Interrupting.) And these results were adopted by and I believe used by the baking powder company.

Q. I know, but didn't you write that article as a purporting contribution, as a matter of science, and have it published in the London News?

A. I did.

Q. And in fact were you not inspired to write that article and to have it published by Mr. Hogan who is the president of the baking powder company?

A. On the contrary, I myself suggested the making of the investigation.

Q. You suggested it to whom?

A. I have forgotten the name of the then president of the company.

Q. Well, it was Mr. Hogan.

A. Yes, sir, I believe that was the name, and I did so with this stipulation, — that the results should be published, no matter what they were, whether they were favorable or unfavorable to the baking powder company, that I should be free to publish them myself.

Q. You received money for that purported scientific contribution to literature, and received it from that baking powder company without the public being given knowledge of that fact until it was drawn out from you before the investigating committe under this Pure Food Law?

A. I will say that I made no concealment of the circumstances.

Q. You didn't tell it to the public when you wrote it, wrote that purported contribution to the scientific world?

A. I didn't know — it was warranted, I know, by the scientific investigation on my part.

Q. The fact is it was never publically known until it was drawn out at the Congressional investigation, is that a fact as far as you know?

A. I made no public statement of the results being used or being paid for it by the baking powder company, until, as you say, it came out in connection with the investigation you mention, but I never misstated the relation which I sustained —

Mr. Miller: (Interrupting.) I have not intimated that.

Mr. Sizer: Go on.

A. (Continuing) — to the baking powder company.

BY MR. MILLER:

Q. Well, the fact is you did not state in this article that you sustained any relations to the baking powder company?

A. No, sir, I did not. May I be permitted to say a word or two there in order to make myself — my position, very clear? I was applied to by the president of the company you mentioned to ascertain or to determine whether the use of alum in baking powder was wholesome or unwholesome. My answer was if I was permitted to investigate or make a scientific investigation with the perfect freedom of publishing the results, no matter what they should be, favorable or unfavorable to the baking powder company in question, I would do it. I made that investigation. I wanted to satisfy my own mind on the fact, and made the investigation and published the results. The results were afterwards used.

Q. The results were afterwards used, as you say, by the baking powder company but these results were favorable to the baking powder company that retained you?

A. They turned out to be so, but I had stipulated I should be free to publish them, equally free to publish them if they were unfavorable.

Q. You did not have to obtain the permission of the president of that company to publish what you found out about a certain baking powder did you — you had perfect freedom to do that, you enjoyed perfect freedom to do that without obtaining his permission?

A. No, sir; in view of the application made to me I should have considered it improper to publish results without the consent of the company unless I had made a stipulation in advance.

The Court: I think this is going too far, Mr. Miller.

Mr. Miller: The next question I was going to ask was if it was not a substance that was not in that baking powder that he experimented with, at all.

The Court: You are getting into a very collateral question — I think the cross-examination has gone as far as it should on that.

BY MR. MILLER:

Q. Now, in connection with the present case, Doctor, you say you are a doctor of medicine?

A. I hold the degree of Doctor of Medicine, but am not a practicing physician.

Q. Well, do you qualify as a physician or not?

A. I do not, because I have not practiced.

Q. And you are not prepared to state whether or not the effects of caffeine are harmful or otherwise on the human health?

A. I think I am prepared to state that, I am sufficiently acquainted with the general subject of medicine to be able to state that.

Q. Then you do, to that extent, qualify as a doctor of medicine?

A. Yes, to that extent.

Q. And as a doctor of medicine, why, you say that the effects are beneficial of caffeine, as you understand?

A. The moderate use of caffeine — containing beverages.

Q. Now, in the capacity that you are here, you were retained by The Coca-Cola Company to attend the taking of depositions at various places since this controversy began, and have traveled rather extensively, going as far as New Haven, and Boston, in connection with their experts, have you not?

A. Yes, sir.

Q. And you have been present at the taking of various depositions?

A. Yes, sir.

Q. Now, are you what would be termed a drug analycist, that is, one who analyses drugs, Doctor? Do you claim to know how to do that?

A. Yes, I think so, sir.

Q. What is the process that you adopt if you were given Coca-Cola syrup for determining, for instance, the amount of caffeine contained in the syrup?

A. I will give you the exact process that I have here.

Q. All right; do so.

A. I have my original notes. You refer to the caffeine only?

Q. Yes, I refer to the analyses you made of the Coca-Cola syrup that was sent to you by Mr. Howard Candler.

A. You refer only to the caffeine — I have got one method of analyses —

Q. (Interrupting.) Yes, give everything that you did with it from the time you received it until you analyzed it and prepared and published this statement which you filed.

A. With reference to the determination of the other constituents, — shall I give you the caffeine only?

Q. Give them all, please, slowly.

A. Well, the first head is that of sugar. The sugar was diluted immediately with water. Cleared with lead hydroxid — the excess of lead was removed by sulphretted hydrogen gas. The solution was filtered. The excess of sulphretted hydrogen was removed by heating. The sucrose, that is the ordinary sugar, was inverted by careful heating with hydrochloric acid.

Q. Could you give us that process without reading from what you have there, could you just fold up what you have and tell us what you did?

A. I could in a general way, but I should be very apt to fail to follow, I do not remember the individual instances. I made these notes at the time.

Q. Can't you, without referring now to any prepared data in writing, tell us in a general way the method you adopted to determine, for instance, whether or not caffeine in preparation — or whether there is coca in the preparation, without referring to those notes?

A. Yes, sir; I began by saying if you want caffeine only I could read that very briefly.

Q. Suppose you just close your notes and tell us from your recollection without studying them what you did in order to determine whether or not there was any caffeine there?

A. I may possibly omit one or two minute steps without the notes. The clearing agent used was lead hydroxide.

Q. What followed that?

A. The solution cleared by this hydroxide was filtered, the excess of lead removed by, in this case, carbonic acid gas, at a boiling temperature. The solution was then shaken up with chloroform in successive proportions — chloroform solution.

Q. You say successive proportions, how many times?

A. Four, if my recollection is clear, I may be mistaken but I think four times.

Q. Are you not familiar enough with the process to tell us if it was four or less?

A. About four times, which is the usual number I use.

Q. Do you mean to say you do not know whether that is the usual and standard method of doing it or not?

A. Yes. It depends upon the amount that would be lost by evaporating the last portion of chloroform. You go on until the chloroform has extracted practically all. The chloroform solution is evaporated to dryness, gently heated, the residue dissolved again with water containing one per cent of sulphuric acid, and the caffeine precipated by what is called Wagner's solution of eothine, the solution being of standard strength previously determined, and the amount used being known. It was used in excess, and after filtering off the precipitants obtained by the action of this agent on the caffeine, the excess of eithine in the filtrate was determined by a standard solution of what is called thio sulphate of soda.

Q. What is the standard solution of that preparation?

A. What I mean by standard solution is one of determinate strength. It is immaterial what the strength is, but you must know it.

Q. What was it?

A. It is what is known as one-tenths normal.

Q. Do you mean one-tenth of one per cent?

A. No, sir; one-tenth normal solution. What is meant by normal solution is one containing the equivalent in grams to the litre of the molecular weight of the substance used.

Q. What is that percentage?

A. I could not tell you that without calculation.

Q. You have told as near as you can when you say one-tenth solution?

A. No, sir; not one-tenth solution, one-tenth normal solution. It is perfectly well recognized.

Q. I am trying to escertain how you knew this was a standard solution, to be plain with you.

A. By testing it against some standard solution of thio sulphate of soda.

Q. Did you make the same test to see if it was standard?

A. I prepared the solution.

Q. Proceed.

A. That is all.

Q. Now, having determined how much eothine ——

A. Having determined how much eithine was left in the liquid filtered off, I substracted from the total amount and I had the amount corresponding to the caffeine. There is a definite relation in weight between the amount of caffeine and of eothine. If you know the amount of eothine,

you know the amount of caffeine precipitated. I determined the amount used by substracting the whole quantity, the amount left over after the filtration, and that gave me the amount of eothine, and by comparison, the amount of caffeine precipitant. The process is what is known as Gonberg's process.

Q. Without referring to your notes, to refresh yourself as to the precise process, I simply want to know if you were sufficiently acquainted with that process to tell us what it was.

A. Certainly.

Q. How you conducted it.

A. Yes, sir.

Q. Now, you may refer to your notes, if you prefer, and tell us how much of the Coca-Cola mixture you used in making this analysis.

A. My recollection is four hundred cubic centimeters — no, sir; upon reference to this I see it was two hundred cubic centimeters.

Q. How much caffeine content did you get?

A. That I cannot tell you without a calculation, because I calculated it into the form of percentage at once and so reported.

Q. Have you your notes which you made of that?

A. No, sir; I have not got the notes of that.

Q. You cannot tell how much you found?

A. No, sir.

Q. Now, tell us those drugs that you used there, those chemical substances rather, that you used to determine the caffeine content, — did you test to see what they were?

A. Yes, sir.

Q. All of them?

A. Yes, sir.

Q. Where was that experiment conducted?

A. At the University of Virginia Chemical Laboratory.

Q. And when?

A. The analysis, of course, took some time. It was chiefly in the month of January. The report was made on the 18th of February, 1910.

Q. Chiefly in the month of January?

A. Yes, sir.

Q. Did you have any assistance in doing that work?

A. None.

Q. None at all?

A. No, sir.

Q. Now, what was your test for determining the coca contents?

A. You mean of the derivative from the coca leaf?

Q. Yes.

A. It was impossible to determine that quantitively. They were necessarily grouped together as shown in the particular analysis.

Q. I asked you what was your test for determining whether that was true.

A. As to their presence?

Q. Yes.

A. Depended mainly upon the peculiar action of the tannin on tannin derivative contained in the coca leaf.

Q. The tannin derivatives are contained in a great many other leaves also?

A. No, sir. There may be more than one tannin derivative present. Possibly there are, but the tannin content of the coca leaf exhibit a very peculiar reaction which I observed is the first instance from an infusion made directly from the coca leaves themselves, and subsequently verified the same reaction as given by Merchandise No. 5 and extracted from Coca-Cola syrups by means of acetic ether, a material giving exactly the same reaction.

Q. But you say there are various tannin derivatives?

A. Yes, sir.

Q. Now, in what growths do you find the tannin, and what are some of the tannin derivatives?

A. There are numerous tannin and tannin derivatives, found in oak bark, and a host of other things having certain properties common to all or to many of them, and some of them giving peculiar reactions.

Q. Any of these in tea?

A. Certainly.

Q. Are they in leaves in general?

A. In a great many leaves.

Q. A great many growths?

A. Yes, sir.

Q. Have you ever studied especially the tannin derivatives?

A. I have studied some of them. It is a very numerous class by itself. I cannot say that I have studied all of them.

Q. What is the peculiarity of any derivative of tannin as contained in the coca from that as contained in various other tannin-bearing leaves?

A. The tannin or tannin derivatives in the coca leaf, exhibit, in the first place, the production of a dark green color with salts of iron.

Q. All tannin do that, don't they?

A. No, sir.

Q. A great many do.

A. A great many do but some give purple and some green and this belongs to the green class.

Q. Yes?

A. In the next place it gave a red coloration a very dark red coloration with cyanide of potassium and ammonia. That is also common to a great many tannins. It gave several other reactions with mineral solutions and exhibited what is by no means common, a failure to precipitate, either with gelatine or cinchonine.

Q. Now, through what process did you put this to determine the particular evidences that were given from which you conclude that it might have been taken from the coca leaf?

A. I prepared in the first instance, as I have said, an infusion directly from the coca leaf itself.

Q. I am speaking about after you left the process which would have shown no marked evidence of its being a derivative from the tannin and coca. Now, let us get to the point where you left and come down to the place where you used certain means for determining whether or not it was a derivative from the tannin found in the coca.

A. By comparison with the infusion from the coca leaf—comparing that with all the tests used, including those which did and those which did not give an affirmative reaction.

Q. But you say there are a great many tannins, and with many of them you are not familiar?

A. That is true.

Q. You also say they bear a very marked resemblance in certain instances?

A. And certain differences.

Q. Now, the tests to which you resorted, if I understand, and which rather confirmed you in your view that this particular derivative was of coca origin, were twofold, and these were the two last you named, and one of those was by comparing this derivative with what you found after having had some solution of the coca leaf?

A. No, sir; each of the reaction tubes differed to some extent; for instance, the color given with salts of iron is generally described as purple, or black, from certain kinds, and green from others, but there are smaller differences in the shades of purple, and the shades of green which are appreciable to the eye if placed side by side, and this particular tannin was in exact agreement in detail as to color of precipitant, kind of precipitant, and so forth,with every one of the reagents used.

Q. Through what process did you put coca leaves before you started this comparative process?

A. I made a direct infusion in water, and applied the various tests to that.

Q. Did you extract the cocaine or not?

A. The cocaine?

Q. Yes.

A. Certainly.

Q. Sir?

A. I did.

Q. Before you started this comparative process?

A. I made infusion both ways, and I used in part decocainized leaf and partly leaves in a crude condition.

Q. What did you do to decocainize the leaf?

A. I treated it with water, prepared an infusion to which the test was applied.

Q. Does that mean that you poured cold water over the leaf?

A. Allowed them to stand some time.

Q. How long a time?

A. I do not recollect, probably an hour.

Q. You as a chemist mean to say or want to go on record as stating that by pouring water over coca leaves, and allowing it to stand an hour, that would remove the cocaine?

A. No, sir; I thought you were referring to preparing the infusion of tannin.

Q. I ask you if you got all the cocaine out of those leaves, where you say you didn't have any cocaine in them when you were making the comparative tests.

A. I extracted that in the first instance by using hydrocarbon salts.

Q. How long did you allow that to stand?

A. For a considerable length of time, and repeated the use of hydro carbon salt upon it.

Q. How long did it undergo that process?

A. I cannot give you the exact time. I did it until I had extracted all the cocaine and could get no more.

Q. You did it until you could extract no more?

A. Yes, sir.

Q. You are not a man engaged in alkaloid work?

A. No, sir.

Q. You merely did it until you found no more evidence by using that process that there was cocaine in there?

A. Yes, sir.

Q. You do not profess to know the art of preparing alkaloids, do you, in a detailed way?

A. I know how they are prepared, as to some of them.

Q. Do you know the process through which these leaves go when they are treated at Dr. Schaeffer's factory — you

say you were up there?

A. Yes, sir. I do.

Q. Through what process are they treated or prepared?

A. I do not feel justified in answering that, because I was given access to Dr. Schaeffer's work, promising not to reveal his peculiar process of manufacture.

Mr. Sizer: We submit the witness ought not to be required to answer that question.

Mr. Miller: I want to ask him one other question before pressing that.

BY MR. MILLER:

Q. You were present in the court house yesterday when Dr. Schaeffer's deposition was offered in evidence in this case, were you not?

A. Yes, sir.

Q. Don't you know as a matter of fact that Dr. Schaeffer arrived in Chattanooga night before last and was secreted in the hotel all of yesterday?

Mr. Sizer: I object to that word secreted. He was not secreted. Mr. Miller saw him.

Mr. Miller: I did afterwards.

The Court: Dr. Schaeffer has nothing to do with this witness' cross-examination.

Mr. Miller: But I have a right to show that Dr. Schaeffer is here.

The Court: I don't see what it has to do with any question on the cross-examination of this witness.

Mr. Miller: If I am not permitted to prove that Dr. Schaeffer is here ——

The Court: I may at the proper time allow you to, but not in the cross-examination of this witness.

BY MR. MILLER:

Then I ask you if you went through that factory and saw the process by which these leaves were treated, and if you did, state what that process was.

Mr. Sizer: We object to that question. The witness states that he went through Dr. Schaeffer's factory under a promise to Dr. Schaeffer that he would not reveal his secret process. He has stated what he saw and what entered into the combination of Merchandise No. 5, and I submit that is all that is material, and that is the process by which that Merchandise No. 5 was manufactured, and it is not material in this case.

The Court: What is the materiality as a process?

Mr. Miller: The witness says he found something there which compares ultimately with one of the derivatives of tannin. We say that is just merely his conclusion, and the primary evidence of whether or not there is a derivative of

coca in there, which is appreciable, depends entirely upon the treatment of this leaf, as this witness himself has shown on the stand. Now, he was in that factory, saw that process and if he will give it to our chemist, who is here, we shall be able to demonstrate quickly whether there is any appreciable amount of that leaf left, or any derivative of it. This witness says he went through the factory, saw the process of manufacture, and he has also said on cross-examination that he found what he believed to be a derivative of tannin which came from this particular leaf, in his analysis. Now, I submit that we can only impeach—and I do not mean impeach in the sense of convicting the Doctor of making any mis-statements—but we can only disprove his conclusion or belief by ascertaining whether this leaf underwent the process which would deprive Merchandise No. 5 of every ingredient that would be contained in it as coming from the coca leaf.

The Witness: Pardon me, but you are attributing to me a statement that it would make a difference. It would make no earthly difference whether the cocaine was removed or not as respects the detection of tannin.

Mr. Miller: I understand that but you were not asked about cocaine.

The Witness: I understood you to say I have stated it would make a difference.

Mr. Sizer: The witness stated that he went through that factory and saw the process and manufacture of Merchandise No. 5 from the coca leaf and cola nut, that he got a sample of Merchandise No. 5 and analyzed it and found that the analysis of that sample corresponded with the work he had seen done, that he found in that sample certain substances that indicated that it had been made from the coca leaf. He testified further that he had manufactured in his own laboratory by the same process that Dr. Schaeffer followed, this same Merchandise No. 5. I submit that the exact process of manufacture is a matter that we are not required to reveal and that Dr. Schaeffer could not be required to reveal it, because it is on account of that process that he has the contract to manufacture this Merchandise No. 5.

The Court: That is the best evidence of what is left in the leaves, or whether there is any essential or appreciable amount. You are in the attitude of giving certain information and withholding other information, letting the Court and jury and the Government experts know something but not what is in this compound. I do not think that is right, and the only question is whether this witness ought to be compelled to reveal the process, or whether I should ex-

clude his evidence. Witnesses must not come here that know things they are not prepared to tell. If they don't want to tell, they had better not take the stand. They must state the facts that are material to this lawsuit. I do not want to injuriously interfere with anybody's business, when it is not necessary to this lawsuit, but I think if you were relying on the fact that there is some principle of coca or of cola in this compound, it is right that the Government should get the full information as to the process.

Mr. Miller: Counsel will bear me out that we have tried to avoid—

The Court (Interrupting): It is with them. If they prefer to withdraw the testimony of this witness as to the fact that coca leaves and cola nuts are used in the manufacture, they may withdraw it so as to not put this witness in the position of being compelled to state what the process is. If they want to leave that in, the witness will be compelled to state what the process is.

Mr. Sizer: We don't want to withdraw that testimony.

The Court: Then the witness will have to answer.

Mr. Sizer: Does your Honor hold that he is required to answer?

The Court: Yes.

Mr. Sizer: We want to reserve an exception to your Honor's ruling.

BY MR. MILLER:

Q. Now you have heard the ruling of the court, I will ask you if you were shown through this factory by Dr. Schaeffer and shown the process, tell us just what the process was by which these leaves were treated and tell us in detail.

A. You understand my position. It is a matter of perfect indifference whether I tell it all or not. It is merely in view of my promise not to reveal the details of the process, and perhaps I might avoid the difficulty and still answer the question with entire frankness.

The Court: I suggest that the Doctor give it to counsel and the chemist for the Government. There is no desire to injure the business of Dr. Schaeffer.

Mr. Hirsch: I suggest, to relieve Dr. Mallet's personal embarrassment, that he has promised Dr. Schaeffer not to reveal it, that we first get Dr. Schaeffer to tell it, and we will have Dr. Schaeffer submit it to the chemist, if they see proper.

Mr. Sizer: Or, they can put Dr. Schaeffer on the stand.

Mr. Miller: Oh, no, we don't want to put Dr. Schaeffer on the stand. You didn't.

Mr. Sizer: The only reason we didn't want to put Dr.

Schaeffer on the stand, is that he does not talk English very well.

The Court: If there is any peculiar machinery or apparatus or mechanical appliances that have nothing to do with the chemical results, those need not be shown. Just enough to enable the Government experts to work on that to determine the result of submitting coca leaves and cola nuts to that process. That is all that I require to be given.

Mr. Sizer: We would like to have one chemist designated. We don't want to give it to more than necessary. Dr. Schaeffer is very solicitous about it.

Mr. Miller: Well, we will designate Dr. Fuller and counsel to be present.

Mr. Sizer: Very well.

The Court: Proceed.

Mr. Miller: We have two chemists that we would like to have it submitted to. You know chemistry is divided into more than one branch.

The Court: Two chemists may be designated.

Mr. Miller: Very well.

BY MR. MILLER:

Q. If I understand, there is a difference between extract of coca as such, and the product that is extracted from coca and then divided into various extractives of its own?

A. I do not quite understand. An extract simply means that which is extracted or taken out of a drug by treatment with a particular salt. It is generally understood to be alcohol unless otherwise specified. Extract means something generally that is taken out of a drug with alcohol.

Q. Is an extract of coca cocaine?

A. Medicinal extract of coca would contain cocaine, but an extract could be made from the leaves from which the cocaine had been previously removed.

Q. What did you find to be the proportion of clorophyll in this Merchandise No. 5, or in the Coca-Cola syrup you analyzed?

A. I know nothing of the proportionate amount. I obtained indications though, not very distinct, of the presence of Chlorophyll but attached very little importance to it because chlorophyll is present in all green leaves.

Q. You don't show that in your analysis?

A. No, sir; for the reason that chlorophyll is always present in green leaves, and it would accord no special

signification of any character in coca any more than in other leaves.

Q. That same thing is true as to tannin?

A. No, sir; tannin is much more sparingly distributed in the vegetable kingdom than chlorophyll.

Q. But it is in a great many?

A. In a great many but chlorophyll is in all.

Q. In this analysis, you have one hundred per cent and that means all there is?

A. That is a result of grouping together the substances which could not be actually determined in that under one head which you will find specified, tannin, extracted matter and so forth. That represents the difference between all the other substances accurately determined and the whole bulk.

Q. Then you intended this analysis you filed to represent all the substances you could find in appreciable quantities?

A. Determinable quantities, quantities which could be accurately determined, and I then subtracted those from one hundred, and the difference is the substances which could not be individually determined.

Q. That was how much, referring to your analysis?

A. I have not a copy of it.

Q. 4.25 per cent?

A. Something like that—3.55, 3.42 and 4.25.

Q. I am speaking of the analysis of Coca-Cola syrup.

A. I find under the head of tannin extracted matter, caramel, glycerine and so forth (by difference) 4.25; in the bottlers; and 3.42 in one article of fountain syrup and 3.55 in the other substance.

Q. By that you mean that those combined substances which you have included under the general head of tannin and extracted matter, caramel, glycerine, and so forth?

A. Yes, sir.

Q. How much is the and so forth and how much is the other substances you found?

A. I cannot tell you because those substances were those for which no accurate determination was possible—they were grouped together.

Q. How much chemical product of the coca did you find there?

A. I cannot tell you because I have no method of accurately determining it.

Q. Then you are not prepared to state that you found any appreciable quantity?

A. Quite an appreciable quantity but how much I do not know.

Q. If you found an appreciable quantity, why can't you tell what it is?

A. Because I have no means of accurately distinguishing it from the other substances, and that is grouped together.

Q. Now, then, if you are not prepared to isolate that substance so as to tell whether or not it is there in any material extent or to isolate it at all and distinguish it from the other undistinguishable substances, how are you prepared to say that it is there at all?

A. I am prepared to say that it certainly was there because I obtained all the distinct reactions indicating its presence. There was abundant evidence to show that, but how much I cannot say.

Q. But you say you could not isolate that from the other substances that under this heading of tannin, extracted matter, caramel, glycerine, and so forth. Now, if you could not do that, how could you, by applying any reactive agent, determine that any one substance was there?

A. By simply observing the reaction that the other substances would not give.

Q. What was the reaction test?

A. I have made one of them, the reaction was a salt and iron. Glycerine would not give that reaction.

Q. What do you mean by reaction in that respect?

A. Observe the dark green color.

Q. What?

A. I observed the dark green color produced from the addition of a salt of iron to the tannin or tannin derivative. That was given to the extract from the Coca-Cola syrup.

Q. Now, that dark green reaction would be given by the tannin that would be there from a great many other leaves?

A. From some other sources. The precise source is not indicated except by the combined results from the various tests used.

Q. So far as that one is concerned, this did not speak anything because you could have gotten that from tannin from other sources?

A. No, sir. The various reactions individually might be obtained from other sources, but collectively—the result of all of them taken together—is not obtained from any other tannin that I know of. I do not say that it may not be given by others, but it is given by none that I know of.

Q. That is your conclusion from all of them, but I am dwelling first on the green color. That might have been obtained from tannin from various other sources?

A. Yes, sir.

Q. Now, pass on to the next step. What was that?

A. The failure to react with gelatine and with a solution of cinchonine.

Q. Did you adopt that or do that singly or collectively with the gelatine and the other substances you refer to, or did you combine the two together?

A. The tests were made individually, but the result considered collectively.

Q. Take the gelatine test; what was that?

A. A precipitant was not produced by the gelatine.

Q. What sort of preparation of gelatine did you use, and what did you do, give us the process.

A. Dissolved finest photographer's gelatine in warm water.

Q. How much?

A. I cannot tell you, enough to give a fairly visible solution, probably one part in two hundred of water.

Q. What kind of water, ordinary water or distilled water?

A. Distilled water.

Q. The ordinary spring water.

A. No, sir; distilled water.

Q. Then what did you do next?

A. You are inquiring about Coca-Cola syrup—I ought to have stated that so far as the detection of tannin was obtained, it was obtained by shaking up the syrup with acetic ether which dissolved the tannin and reactions were obtained from the residue left on separating that acetic ether solution.

Q. You had ether in there that I did not know about. I understood you to say first that you used a particular kind of salt and on that there was a green coloring, and you left that you went to the gelatin test?

A. Yes, sir; but those tests were applied to material extracted from the syrup so as to separate the caramel and other material present by means of acetic ether.

Q. Now after you had used acetic ether, how much of that did you use?

A. Enough by repeated shakings to take out at least the greater part of tannin present.

Q. How much of the Coca-Cola syrup were you using in that test to start with?

A. I am pretty sure it was four hundred cubic centimeters.

Q. Now, when you got down to the gelatin test, you put in one part to two hundred of water—I believe you said that?

A. Something like that, I did not measure it precisely.
Q. Now, what was the result?
A. No precipitant.
Q. That means nothing was precipitated at all?
A. No cloudiness, no precipitation. I have the notes of that here.
Q. Was there any coloring of the water?
A. No, sir.
Q. So that was a purely negative test, you didn't find anything after you introduced that into the water?
A. I got no precipitate.
Q. You said you got no coloring. Now I want to know what you did get. Nothing was precipitated and nothing was colored. What did you get and what did you learn?
A. I learned that it was not one of the ordinary tannins which would give a precipitate with gelatine.
Q. That is a most common thing to find tannins that don't give a precipitate?
A. No, sir; a great majority of them give precipitates.
Q. I infer from that that a goodly number do not.
A. No, sir; a small number.
Q. Some do not?
A. Yes, some do not, some tannin derivatives. I do not know that any of the tannins proper fail to give precipitates.
Q. This, you say, however, was a tannin derivative?
A. Mainly on the ground of a failure to obtain a precipitate with gelatine.
Q. Well, now then, when you introduced this residue that you have testified, after you had put it through the first process, into the second process—why you have got no coloring, you have got no precipitation?
A. Yes—
Q. (Interrupting) and as a consequence you had a negative action pure and simple?
A. Yes, sir.
Q. Are tannins derived from—
A. Yes, sir; they are sometimes in the cola nut or seeds ——
Q. And they are derived from the wine also?
A. Yes, sir.
Q. In some wine?
A. Yes, sir.
Q. Isn't it practically from all wines?
A. From the majority of wines, they contain some small amount.
Q. Do you mean to say that or do I understand you to say that you are prepared to give us a definite opinion

or a definite statement, rather, from your knowledge, as to whether or not other tannin derivatives would precipitate under like conditions?

A. Would precipitate or fail to give precipitates.

Q. Well, it would do one or the other, as the old woman said about the bad eggs, they would either sink or swim, she had forgotten which. You say it would or would not? Are you prepared to say that all tannin derivatives would precipitate or that they would not precipitate?

A. No, sir; I have endeavored to make my meaning clear by saying that enough tannin— would agree with the tannin from the coca leaves in some respects and the evidence that a particular tannin or tannin derivative came from the coca leaf would be obtained by proper test and some would give an affirmative and some a negative —

Q. (Interrupting) You say that some of them would give this same negative result, or that some of them might, that you found in this case?

A. Yes, sir—the same as catethein will do it.

Q. And a good many of them you say that you are similarly familiar with to be able to tell us they do?

A. A good many of them I myself have not experimented with. I am acquainted with them from the general literature which I have looked over in connection with my own experience.

Q. But you are not personally prepared to state what they would do?

A. No, sir.

Q. All right. Now, what was the next test that you resorted to?

A. Free precipitation by lead acetate. Dark green color with ferric-chloride and a deep red color with potassium perri-cyanide, and ammonia, reducing Fehling's solution, and is rendered orange brown by sodium hydroxid, but is only slightly if at all precipitated by gelatine solution or by cinchonium sulphate.

Q. And in that case you did—you failed to find any precipitation at all or observe any?

A. We would—

Q. This last test you made with the glycerine or cinchonium sulphate?

A. I noted at the time a slight trace with a gelatine solution or by cinchonium sulphate.

Q. Now, if there had been any wine tannin or derivative in there, that would have precipitated, would it?

A. I beg your pardon?

Q. If there had been any wine tannin in this mixture of Coca-Cola syrup that should have precipitated it, should

it not?

A. If it was wine tannin in sufficient amount.

Q. In sufficient amount?

A. Yes, sir.

Q. And that same thing would be true of the tannin that would have been derived, if any, from coca, if it had been there in sufficient amount?

A. It was present in sufficient amount having concentrated by dissolving it out with acetic ether.

Q. You concentrated all the tannin or all the tannic extracts and got it together and from that 400 cubic centimeters you are talking about—now then, if there had been wine tannin there and the coca tannin there, now could you tell which it was?

A. I could not tell if the mixture were of unknown preparation, I could not tell it except that the wine tannin would give a precipitate with gelatine.

Q. Now, you did not endeavor to ascertain, as I understand you, how many different kinds of tannin there were, or what they were taken from, that is, to isolate and what particular character of tannin or extract of tannin they were?

A. No, sir, I don't believe it possible to do so.

Q. And hence you cannot say what proportion there was of either?

A. No, sir, not numerically.

Q. Tannin is a substance that can be very readily precipitated by one who understands the art, can't it?

A. If you know the kind of tannin, it can be determined with a fair degree of precision, but not with a very great degree of precision.

Q. If you had known the kind that was used here, you could ascertain with reasonable degree of precision the quantity that there was?

A. I didn't know the kind of tannin.

Q. If you had known what it was?

A. Well, there are well-known kinds of tannin.

Q. Is that in coca very well known?

A. No, sir; I don't think so.

Q. You don't think it is?

A. No, sir.

Q. Has it been known for years and years?

A. It has not been examined with any degree,—

Q. (Interrupting) You went into this experiment without knowing very much about coca tannin?

A. Except from my own observation; I studied it with the view of determining the particular character for this very purpose.

Q. Having studied it, can you tell us whether or not there is any known method of determining what quantity of wine tannin of cola tannin and of coca tannin there would be in a mixture such as you had? If so, what is that method?

A. If the source of the tannin were entirely unknown I should not be able to determine. In this case I knew positively from observation the materials used in the preparation of Merchandise No. 5 and I knew the presence of merchandise No. 5 in the Coca-Cola syrup. I was therefore able to fairly estimate the proportions in which the tannin from these other sources ——

Q. (Interrupting) Therefore you went into this investigation upon the assumption that these preparations contained tannin that was originally manufactured or extracted and prepared in Doctor Schaeffer's factory?

A. Certainly, sir; I saw it there prepared.

Q. And you took this Coca-Cola syrup, assuming that Merchandise No. 5 had been used?

A. Certainly — I saw it used.

Q. And you say if you had not known that you could not have done it?

A. If I had had it presented to me with no such knowledge as to the use of the coca leaves in the preparation of Merchandise No. 5 and the use of Merchandise No. 5 in the preparation of Coca-Cola syrup, if I had had presented to me an unknown mixture, or samples from three sources named, I could not determine the amount ——

Q. And even with the knowledge that there was, or on the assumption, rather, that there was the tannin from the coca in this Coca-Cola syrup, you are not prepared to say what proportion of it was from the coca, what proportion of it from the cola, and what proportion from the wine?

A. I am prepared to say that the proportion must be very much larger from the coca leaves.

Q. How do you know that?

A. From the facts I have already mentioned.

Q. What are those facts?

A. I have seen the preparation of Merchandise No. 5 and have seen the amounts of the coca leaf and the kola nut used in making it, and seen Merchandise No. 5 used in the manufacture of the Coca-Cola syrup.

Mr. Miller: Now, I ask to exclude that answer; that is based entirely on his observation of a process which he has declined to give.

Mr. Sizer: You asked him how he knew it and he answered.

Mr. Miller: I am confining myself to his experiments.

And I most respectfully submit he should not give me his conclusions without telling what the thing is.

Mr. Sizer: When he asked him how he knew a thing,—he has a right to tell him how.

The Court: I think counsel may ask the question for the purpose of determining whether the opinion is well founded. And I think Mr. Miller asked the question in order to test the opinion of the witness. It appears that the basis of the opinion of this witness as to that extract of tannin in this compound is a fact of which he has knowledge derived from personal observation at the factory, and until he states the facts in connection with that, and the amount of the coca leaves and the process, his opinion being based on that, it will be excluded.

Mr. Sizer: That was in reply to his question, Mr. Miller's question. The question was asked whether he could determine the relative amount of the tannin in that mixture derived from the coca leaves and kola nuts, and he has definitely stated already that he did find and is able to testify that there was tannin there derived from the coca leaves by reason of certain experiments, and when it comes to the relative amount, he says he could not determine that ——

The Court: I think the witness stated that the extent of his knowledge was based on the process, he was asked how he determined that fact and he said he was unable to determine it without having seen the process. I exclude his opinion of the analyses of that compound until the facts in reference to its preparation are stated.

Mr. Sizer: I think your Honor is in error as to what Doctor Mallet testified. I think, your Honor, if you would have the stenographer read the question preceding the last one, so as to see whether he could determine ——

The Court (interrupting): Yes, the last question, I remember that; he said he could not tell even this tannin that was in there, the tannin from the coca as distinct from the wine and cola, unless he had known of the presence of it ——

Mr. Sizer: I will draw that out later.

The Court: But, independently of that, I am of the opinion that the question of amount, the relative amounts, are material in this controversy. It is a question whether the amounts are appreciable or not, and the Court and jury must pass upon that question in the light of the facts, and the opinion of a witness who is unable to determine relative amounts, and can only express an opinion that there is an appreciable quantity based on his actual knowledge of some facts not stated in court, should not go in evidence.

We want the facts in regard to this and not a partial statement.

BY MR. MILLER:

Q. Did you ever see coca growing, Doctor?

A. No, sir; I never.

Q. You never saw it green?

A. No, sir.

Q. Did you ever see kola?

A. No, sir.

Q. You don't know whether that design on the keg there is a reproduction of either or not?

A. No, sir.

Q. You are not prepared to say?

A. No, sir.

Q. Was there any Merchandise No. 5 sent to you by Mr. Hirsch from Atlanta?

A. Not by Mr. Hirsch.

Q. Was there any sent by Mr. Candler, what purported to be Merchandise No. 5, by Mr. Howard Candler?

A. Yes, sir; I have two samples.

Q. What was the size of them, Doctor, of the bottles?

A. You mean the Merchandise No. 5?

Q. Well, of both bottles?

A. Do you refer to Merchandise No. 5 or to Coca-Cola syrup?

Q. You got two bottles?

A. Yes, sir; labeled 1 and 2.

Q. Labeled 1 and 2?

A. Yes, sir; that is, of the Coca-Cola syrup.

Q. What was the size of both of those bottles?

A. My recollection is they were about ten or twelve ounce bottles.

Q. Then they were both about the same size?

A. Yes, sir.

Q. And how were they transmitted?

A. By express.

Q. Would you be prepared to recognize Merchandise No. 5 if you should see it and smell it?

A. I think so.

Q. And taste it?

A. I think so.

Mr. Sizer: Are you going to make him drink out of that jug?

General Cox: You can give him a Coca-Cola glass if you want it.

Mr. Miller: If you will furnish a glass, the glass you introduced here yesterday.

Mr. Sizer: I think the stenographer carried it off.

BY MR. MILLER:

Q. To what extent, Professor, are you familiar with the methods of isolation and identification of the active principles of drug products and medicinal products?

A. I know of them in a good many cases, I could not say in all.

Q. Is there no general method, or do methods vary?

A. I am sure I did not understand.

Q. To what extent are you familiar with them — are you a man that claims to be an expert in that kind of work?

A. In some of it, yes.

Q. What is the characteristic alkaloid of coca, Doctor?

A. The most important one is cocaine.

Q. I am not asking you the most important one. I asked you if it has a characteristic alkaloid, what it is.

A. There are several characteristic alkaloids, but one that is largest in amount and most important that is principally used, is cocaine.

Q. What are the other important alkaloids?

A. Bengol, ecgonine and cinnamyl.

Q. And these are all characteristic alkaloids of the coca?

A. All of them are characteristic alkaloids but they are not all that have been found. There are others still. One about which there is some doubt is known as hygrine.

Q. I am not talking about or asking you about that——

A. (Interrupting) There is some doubt as to its existence in coca —— hygrine.

Q. Did you discover any of that doubtful one in Merchandise No. 5?

A. None of the alkaloids in Merchandise No. 5.

Q. There are none of them in there?

A. No, sir.

Q. Could you state from your analyses whether or not the caffeine present was derived from the cola in this Coca-Cola syrup?

A. I could not say as to the caffeine, but there is also in the kola nut besides caffeine an alkaloid, theobromine, which is found in larger quantity in chocolate, that is found in Merchandise No. 5.

Mr. Miller: That part of the answer I ask your Honor to exclude because I did not ask about it.

The Court: The exception is sustained and the answer is stricken out.

The Witness: It furnishes an indication of caffeine, cola, from the kola nut, and in point of fact in Merchandise No. 5 there was no source from which caffeine could be derived.

BY MR. MILLER:

Q. My question was purely this: Could you or not tell from your analyses from what source the caffeine was obtained, or rather, whether or not it was obtained from cola.

A. The analyses of what?

Q. The analyses of the Coca-Cola syrup.

A. I could not tell. I understood you to say in Merchandise No. 5.

Q. Now, you stated during your examination this morning that you observed some soldiers who took coffee, that they were more stimulated than some who did not?

A. Yes, sir.

Q. And this you attributed, of course,—the stimulation —to the caffeine?

A. Certainly.

Q. And as a doctor of medicine you state that caffeine is a stimulant?

A. Yes, sir.

Q. As a doctor of medicine you state that it is not a poison?

A. I think it is not a poison, using the word "poison" in the ordinary accepted scientific sense.

Q. Now then, what do you mean by poison in the ordinary accepted scientific sense?

A. The word does not admit of an exact definition because even by scientific men it is used with a certain amount of variation, but I understand as the general accepted meaning of the word among scientific men, it is any substance which when taken into the body in stated amounts, and usually in relatively small amounts, acting chemically, is capable of producing on ordinary persons, or an average person, death or grave injury to health.

Q. Now, you yourself have used in that connection the term "virulent poison"?

A. Yes, sir; I suppose I have.

Q. And by that you meant one which was more poisonous than something else?

A. Yes, sir.

Q. And one that was poison in a smaller dose, or smaller doses than one that is poisonous in larger doses?

A. Yes, sir; and produces more violent effect.

Q. You have also referred to the use in your writings of such words, in connection with various drugs as toxicity and poisons, have you not referred to that as producing toxic effects and being poisonous?

A. I don't know whether I have or not, I think very likely I have.

Q. Then there are what you understand from a scien-

tific standpoint, certain poisons and toxins?

A. Yes, sir. The word toxin is used now in a very scientific sense — in a general way toxic is the same thing as poison, but the term toxin has come to be used in a specific use in regard to certain organic substances produced in bodies of living animals.

Q. Have you not stated and is it not a fact that the toxic or harmful effect of a drug — that is, not a virulent poison or a substance that is not a virulent poison — depends on its daily use?

A. On what?

Q. On its habituary daily use.

A. No, I don't know that I have.

Q. In the meantime, while we are finding that reference — I have this Merchandise No. 5, — that is, we have a sample here, and I will pass that to you and ask you to state whether or not the contents of that jug is Merchandise No. 5.

(The witness here examined the liquid, tasting it.)

A. I am inclined to think it is, though I am not positively certain about it.

Q. You stated, didn't you, that you could tell that when it was presented to you?

A. Yes, sir; I said I thought I could, but I am not positively certain. I should not be absolutely certain as to the difference between one wine and another, but my impression is that it is.

Q. That that is Merchandise No. 5?

A. Yes, sir.

Mr. Miller: We will ask to put in the jug which we have here, to introduce it in evidence as Exhibit No. 1 to this witness' deposition.

BY MR. MILLER:

Q. What is the odor you get from that, Doctor? Just describe it.

A. (After smelling the jug.) I don't know that I can describe it; it has a peculiar odor, it is derived no doubt from the volatile matters, probably in the nature of the essentials oils as they occur in the coca leaf.

Q. And that is as nearly as you can describe the odor of it?

A. Yes, sir; I do not know that I can describe it more minutely.

Q. Now then, referring to the question, or a few questions back, didn't you use this language with respect to one of your tests to ascertain whether or not a certain substance was poisonous or deleterious: "It may of course be

reasonably supposed that a considerably less quantity than would be necessary to produce decided discomfort when once administered might prove objectionable and injurious if habitually taken as a part of the bread of each daily meal"?

A. Yes, sir.

Q. And didn't you state this further before a Congressional committee with respect to substances that might prove harmful if taken in immoderate ——

The Court: There is no question about that, Mr. Miller, as to whether it might be harmful if taken in some quantity ——

Mr. Miller: My point was I think we have shown this was taken in daily consumption by the average consumer ——

The Court: (Interrupting) The only question is whether you apply that to caffeine — there are no doubt things that may and others that may not.

Mr. Miller: It is a fact if I understand, that taken in daily quantities, that is, taken with each meal, certain things become deleterious and injurious to health where one dose would not be so.

The Witness: That is undoubtedly so with some substances.

BY MR. MILLER:

Q. Is it also true that in your experiments to ascertain about that, you purposely took larger doses or utilized larger doses than were ordinarily consumed for the purpose of determining deleterious effects?

A. In the case of alum ——

Q. That would be so of any others ——

The Court: That is immaterial. As the Court has already ruled, the only question that would be proper here would be the inquiry in regard to caffeine; limit the cross-examination to caffeine.

BY MR. MILLER:

Q. I will ask you whether or not in the experimentation to ascertain the effects of caffeine, whether it would be proper to take larger quantities than are ordinarily administered for the purpose of ascertaining as to the deleterious effects.

A. Undoubtedly it is practicable to use larger quantities of a substance in order to indicate the character of the effect produced.

Q. I understand in your examination in chief you undertake to speak as a toxicologist when you speak about the harmful effects of this mixture.

A. I think I can say that I have had a good deal of experience.

Q. Did you speak from a toxicological standpoint when you gave your testimony in chief, — is what I wish to know.

A. Yes, sir. I was ready to testify as to a toxicological point.

Q. Now, what are some of the standard works on toxicology that you are familiar with?

A. Well, Doctor Witthaus' book on Medical Jurisprudence is a very good authority. Doctor Wormley's book on Chemistry of Poisons is a very good book. Taylor's Medical Jurisprudence, an English work, is a very good authority, and there are many others.

Q. I have asked you to name some of the others.

The Court: I think that is sufficient.

The Witness: Draggendorff.

BY MR. MILLER:

Q. Just a minute, and I will try to refresh your memory. What have you to say as to the work of Doctor Kobert?

A. He is a very good authority.

Q. And Doctor Cunkill?

A. I know of that book, I believe it is a good authority.

Q. And Doctor Kionki?

A. That also I think has become recognized as a good authority.

The Court: Is it your object in introducing this to contradict this witness by the textbooks as to matters this witness has expressed opinions on in the examination in chief?

Mr. Miller: He stated on his cross-examination that his opinion in chief was based in part on his knowledge of toxicology.

The Court: Yes, I understand that, but do you propose to contradict this witness by these works — contradict any opinion that he expressed on his examination in chief?

Mr. Miller: Yes, I think so.

The Court: I make an express distinction between opinions expressed in chief and on cross-examination.

Mr. Miller: That is the reason I asked him if he based his opinion in chief as a toxicologist.

BY MR. MILLER:

Q. How about Doctor Muccioli, is that a standard authority?

A. I cannot say.

Q. You are not familiar with that?

A. No, sir.

Q. Well, Doctor Gadamer's work on Toxicology, is that a standard?

A. Gadamer?

Q. Yes.

A. That, again, I know but very little of from personal reading. I have seen quotations from it.

Q. Well, that is regarded as a reputable authority, a standard authority, is it?

A. Generally so, I think. No one would ever commit himself to the position to agree with every statement contained in any kind of a work, he can only speak of the general reputation of the author as representing an average of scientific knowledge.

Q. You regard Doctor Schmiederberg as an authority on Toxicology and poisons?

A. Generally, but I cannot say that I would agree with everything as correct contained in his work.

Q. How about Muccioli, you say that is a standard or not?

A. I suppose it is, but I know very little of it.

Mr. Miller: I have not the book here. I will at this point close the examination but I will ask to recall this witness because I did not know he was going to base his statement on his knowledge of toxicology, there was no indication of it given on yesterday or until he stated on cross-examination that he did base his opinion which he expressed on his knowledge as a toxicologist. I have the books here but they are not in the court room.

The Court: What did he state in reference to a poison on the direct examination?

Mr. Miller: He stated that caffeine was not a poison.

Mr. Sizer: I do not think that he stated that.

Mr. Miller: Well, I appeal to the stenographer's notes.

The Court: Let the stenographer look it up.

Mr. Miller: He was asked as to whether it was a poison in chief and that is the reason I asked him as to the harmful or unharmful effect on cross-examination, I asked him whether he based that on his knowledge as a toxicologist.

The Court: The question as to whether he stated it was a poison or not — the stenographer can look that up, or that it was not a poison. The stenographer can look that up before you recall him.

BY MR. MILLER:

Q. What was that statement you made as to charcoal, the effect of charcoal on caffeine, in a mixture like the Coca-Cola syrup?

A. That in determining the amount of caffeine in an analysis, animal charcoal should not be used to remove the color because charcoal absorbs some of the caffeine itself and absorbs it to a variable extent.

Q. How do you know that fact?

A. From actual experience and from literature on the subject.

Q. What literature?

A. Allen's Organic Analysis.

Q. And will you kindly refer us to the page of Allen's work?

A. I can do it.

Q. Well, you need not do it right now.

A. I will refer to it if anyone has it here in court now.

Q. Did you test this mixture for caffeine, this Coca-Cola syrup?

A. Yes, sir; certainly, and determined there was caffeine in it.

Q. Now, you are sure there was caffeine in it?

A. Yes, sir; certainly.

Q. How did you determine that?

A. I have already given you the details of that. I can repeat it again if you wish them.

Q. Did you get the caffeine pure?

A. Yes, sir; certainly. I determined the amount by Gomberg's method, but I also specifically isolated the caffeine and obtained it in the pure state, proved it was caffeine.

Q. Now, what was your method of isolating this caffeine after you got this mixture, Doctor?

A. Well, substantially as shaking out with chloroform and purifying the caffeine afterwards.

Q. Did you weigh the caffeine?

A. No, I did not because it was so obtained, for the reasons I have given.

Q. But you purify that caffeine when you got it out?

A. In that case, I did, used animal charcoal, I used animal charcoal — it is perfectly proper to use it in getting some of the caffeine in the pure state.

Q. Did you use the animal charcoal in your experimentation?

A. Not in determining the amount. That is the exact point involved — if you simply want to obtain some of the caffeine in a pure state, it is perfectly proper to use animal charcoal, but if you want to obtain the amount, it is entirely erroneous to use animal charcoal.

Q. But you didn't weigh your caffeine until after you had gotten it into a pure state?

A. I did not weigh the caffeine which I purified at all, I determined the amount of the caffeine by the Gonberg method.

Q. Where was it you put the animal charcoal in combination with it?

A. I used it, in de-colorizing the caffeine which I simply wanted to have as caffeine, but I did not use the animal charcoal in the quantitive determination of the amount.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH;

Q. Explain in detail exactly when you used that animal charcoal.

A. Why, it was permissible in one case and not in the other.

Q. Well, explain just what you did.

A. I have already stated ——

The Court: (Interrupting.) It seems the witness has been very specific on that point, and it is not necessary to repeat it, he has said it twice.

BY MR. HIRSCH:

Q. Doctor, was it the same sample as you used the animal charcoal on that you had already determined from the qualitative point of view how much the caffeine weighed?

A. It was the same sample, exactly the same sample of the Coca-Cola syrup, but it was a different portion of that sample that was used to obtain the caffeine in the pure state so as to say it was present, and the proportions used to determine the amount of the caffeine.

Q. These peculiar tannins you refer to, are they generally known throughout the vegetable kingdom?

A. No, sir.

Q. From your examination of cola, is there any source, taking into consideration all the tests you made, from which this peculiar tannin could be obtained except that from the coca leaf?

Mr. Miller: I object to that and also to the answer preceding, because the process has not been disclosed — only as it has been admitted in evidence that there was any proportion from the coca leaf in this mixture — we have had no opportunity to cross-examine him on that point — I mean to say, to test the correctness of his statements on that point.

Mr. Sizer: (Interrupting.) That is not based on his examination as to factory. The question was now, as to whether or not the tannin he found by analysis that he made could have been obtained from any other source than

the cola.

The Court: I understand that he has given his opinion based on his knowledge acquired at the factory, and not purely on results.

The Witness: I was questioned as to the possibility of determining the amount, the relative amount of tannin from different sources, and I said that in order to do that I did take into account what I saw at Maywood and what I saw at Atlanta, but as regards the identification simply of the tannin, it was not based upon that. It was a question as qualitative as distinguished from quantitive analyses. In my determination whether this peculiar tannin in Merchandise No. 5, I got exactly the same reactions from the extract Merchandise No. 5, that I got from the infusion of the coca leaves themselves.

Mr. Miller: I move to exclude the witness's answer because it gives purely the qualitative rather than quantitive feature of the case. He distinctly stated but for this inspection at the factory, he could not have told as to the quantity that was there.

Mr. Hirsch: We admit that, that is as to the quantity, we also say he could tell it was there or derived from the coca leaf, not as to quantity but that certain kind of peculiar tannin was there.

BY MR. HIRSCH:

Q. I will ask you this question. Could that peculiar tannin have been derived from any other source?

Mr. Miller: I object to that because he has distinctly stated he did not know in case because there were a great many leaves which he did not know about which might bear tannin. I mean in his cross-examination.

The Court: That is a matter going to the weight of the testimony, and of the weight of the opinion.

Mr. Miller: My exception before that has not been ruled on.

The Court: I understand the exception and am thinking about it, Mr. Miller.

BY MR. HIRSCH:

Q. Could this peculiar tannin in the three separate tests you have made been derived from any other source except the coca leaf?

A. Not that I know of from my own observation and from the general literature on the subject.

The Court: Is there any way by which you can tell or could tell whether this peculiar tannin you speak of from the coca was present in any particular degree or partic-

ular amount apart from your knowledge obtained from the factory—is there any way you could tell how much of it was present strictly from your analysis?

The Witness: Only very approximately; for instance, comparing the depth of the color, not the character, produced by contact with salts of iron.

The Court: If this witness is prepared by eliminating what he saw at the factory, to express his opinion as a scientific expert as to the relative amount of the derivative from the coca leaf that was in that mixture, he may do so, provided he will put a quantitive basis on it so we can tell something about it.

The Witness: I would not only answer that by saying there was a very considerable amount, but how much numerically, could not say.

Mr. Miller: I object to that.

The Court: I will not put the question to him; you may ask him whether or not he can give any quantitive basis that would afford any reasonable basis on which we can rely, you can ask him.

BY MR. HIRSCH:

Q. What do you mean by considerable amount?

A. Well, I mean that the tannin-like material which I extracted from the Coca-Cola syrup by shaking it up with acetic ether, gave me the depth of the color in salt of iron which indicates there must have been a considerable proportion of it, but what proportion I could not possibly say.

Q. Could you approximate it, Doctor?

A. No, sir; not numerically, yet I could say that the larger part of what was present must have been of that peculiar character.

The Court: I will overrule the exception.

Mr. Miller: I will ask you to state why?

The Witness: Because of the influence of the other tannings which you refer to.

BY MR. MILLER:

Q. I ask you then what proportion of these tannins, extractive matters, caramel, coloring, and so forth, was glycerine?

A. That I can't tell you.

Q. What proportion of it was caramel?

A. I can't tell you that.

Q. What did you intend by "and so forth" to convey, what does that intend to cover?

A. What is commonly called extractive matter. The

term extractive term merely means all those organic substances which have been extracted in active solutions which are not referable to definite analysis, an indifinite term intended to apply to indefinite substances.

Q. And after that indifinite amount of those extractive matters was accounted for, and the caramel was accounted for, and the glycerine was accounted for, then the remainder of this 3.55 per cent was what you term tannin or tannin extract?

A. Yes, sir.

Q. And you don't know, as you stated in your cross-examination before, of your own knowledge, whether that was from wine, from cola or from coca?

A. I said I could not determine the amounts.

Q. Approximately what?

A. I said the greater portion must have been derived from the coca leaf.

Q. But what amount you do not know?

A. No, sir; not numerically.

Q. And that opinion was based on the assumption that you saw the coca leaf being treated at Dr. Schaeffer's factory at Maywood, and you took that as a basis and took that into consideration in making your statement?

A. No, sir; not in answering the question I was asked last. I say it would have to be taken into account if there were to be any actual numerical determination of the relative amount of tannin.

Q. Then I understand you to say there is no method by which you can determine what proportion of this three and fifty-five hundredths was composed of tannin or tannin derivatives?

A. Well, that could be approximated, but I did not make a determination of the glycerine and other substances present, and therefore I could not know what amount to subtract from the three and fifty-five hundredths.

Q. Are you or not prepared to give anything like a definite opinion as to that?

A. No, sir. In order to avoid confusion, I will let it be understood in there that the greater part of the tannic acid derived from the coca leaves, I meant the greater part of the tannic substances extracted by acetic ether—I didn't mean the greater part of three and fifty-five hundredths which includes the other ingredients.

Q. Can you give us approximately the proportion of the three and fifty-five hundredths which was composed of tannin alone?

A. No, sir; I cannot.

Q. You can't give us the proportion that was composed of tannin, but whatever that proportion was, you think it was a greater amount of that.

A. Of the tannin.

Q. So that might have been due to the tannin from the coca, the extractive matter from the coca?

A. Yes, sir.

Q. But there are a number of leaves which produce like extracts?

A. Yes, sir.

Mr. Miller: Now, I move to exclude all the evidence on that point, because it is indifinite, he does not undertake to give anything approximate. He even says he is not prepared to do so.

The Court: I think that goes to the weight of it, and not to its admissibility, and I overrule your exception.

Mr. Miller: We except.

BY MR. MILLER:

Q. Can you approximate the amount of caramel that is contained in that three and fifty-five hundredths per cent.?

A. I made no attempt to determine the caramel quantity.

Q. You made no attempt to separate then, any substances that are included under the tannin and extractive matter, the caramel, the glycerine, and so forth.

A. No, sir.

Q. You do not undertake to say what proportion of the whole was derived from wine?

A. No, sir.

Q. Nor Kola?

A. No, sir; subject to the limitations by the former answer.

(Witness excused.)

CHARLES E. CASPARI,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. HIRSCH:

Q. What is your name and occupation?

A. Charles E. Caspari, chemist.

Q. How long have you been so engaged?

A. For the last ten years — eleven years.

Q. What particular preparation have you had in this line of business?

A. Graduate of John Hopkins, Baccalaureate and Ph. D.

Q. What experience have you had in the analytical line?

A. I have been engaged in that ever since graduation.

Q. Have you been connected with any institution of learning?

A. Chair of Chemistry in the St. Louis College of Pharmacy.

Q. Have you had any particular experience in the examination of food products?

A. Yes, sir.

Q. I will ask you to state if you made an analysis of Coca-Cola syrup.

A. I did.

Q. How many samples?

A. Two.

Q. From where were they obtained?

A. One of these samples I bought at a drug store in St. Louis and the other was sent me from Chattanooga by W. H. Foster.

Q. State the results of this analysis.

A. I found, so far as caffeine content is concerned, 21/100ths of 1 per cent. in both samples.

Q. How much would that be in an ounce of the syrup, in grains?

A. Of the samples I worked with the specific gravity with 1.257, and it would amount to 1.21 grains per fluid ounce.

Q. Have you made a determination and if so when and how, of the quantities of caffeine that appear in tea and coffee ordinarily served in restaurants, hotels, etc.?

A. Yes, sir.

Q. Please give us the result of that investigation.

Mr. Miller: It is not necessary, I suppose, for me to reserve objections to this same line that I have heretofore made.

The Court: It may be considered it is noted.

A. I have examined ten cups of coffee for their caffeine content, which I procured in Chattanooga, and, if I may be allowed to refer to my notes, I will give the results.

BY MR. HIRSCH:

Q. State the dates when that was done.

A. The samples were taken here in the month of November, 1910, and the analyses were made between then and Christmas.

Q. Give the places in each case.

A. It was a cup of coffee served by various restaurants and cafes. I did not undertake to determine the volume

of coffee or of the cup in which it was contained.

No. 1 came from Bowers' restaurant, Ninth near Market, and contained in the cup of coffee 1.56 grains of caffeine.

The Court: Was that black coffee or coffee with milk in it?

The Witness: Black Coffee. None of these had milk in them.

The Court: You just asked for a cup of coffee?

The Witness: Yes, sir; and they offered me cream but I did not take the cream.

The Court: Was the coffee poured out or did you pour it out?

A. They brought me a cup of black coffee.

The Court: But did you call for a cup of black coffee as distinguished from a cup of coffee with cream?

The Witness: I just called for a cup of coffee.

No. 2 was from Freeland's Lunch Room, 113 West Ninth street, and contained 2.45 grains of caffeine.

No. 3, the Grand Ocean Cafe & Grill, 832 Market street, contained 1.25 grains of caffeine.

No. 4 New York Cafe, Market near Fourth, 2.93 grains of caffeine.

No. 5, United States Cafe, 829 Market street, and contained 1.53 grains of caffeine.

No. 6, The Hotel Patten, and contained 1.78 grains of caffeine.

No. 7, Read House, dining room opposite Union Station, 1.96 grains of caffeine.

No. 8, Union Station Lunch Room, 1.95 grains of caffeine.

No. 9, Ellis Lunch Room, Market near Ninth, 1.26 grains of caffeine.

No. 10, Sprague's Cafe, Market between Seventh and Eighth, 2.02 grains of caffeine.

The average of these was 1.87 grains of caffeine per cup.

Q. Have you seen Coca-Cola manufactured?

A. Yes, sir.

Q. Where?

A. Atlanta.

Q. Where was it being manufactured at the time you made your observation?

A. I do not know the exact location so far as the names of the streets, but it was a building at some distance removed from the Piedmont Hotel where I was stopping. Two floors were devoted to manufacturing and the floors above that were used for office purposes. That was the building in which Howard Candler had his office.

Q. Is it the same building that has been described by

Howard Candler?

A. Yes, sir.

Q. Did you go through this factory?

A. Yes, sir.

Q. What condition did you find the factory in?

Mr. Miller: I object to that.

BY MR. HIRSCH:

Q. Describe it.

Mr. Miller: I object to that.

BY MR. HIRSCH:

Q. When did you go through that?

Mr. Miller: I object to that?

The Court: Why?

Mr. Miller: It is too indefinite.

BY MR. HIRSCH:

Q. When did you go through there?

A. The latter part of November or the early part of December, 1909.

Q. Now, I will ask you to describe the condition of the building as it pertained to manufacture.

Mr. Miller: I object to the condition then existing. It was subsequent to this suit. It might have been cleaned up after that. I do not object to the construction of the building but I object to the sanitary conditions he ofnud with reference to the refuse matter.

The Court: There have been no complaints filed by the Government as to any lack of sanitary features, that was a month or two after and sufficiently near to make it competent and I overrule the objection.

Mr. Miller: Note an exception.

A. I noted nothing that I would consider unsanitary in any way.

Mr. Miller: We object to that.

The Court: I sustain an objection to that. The witness can just state the facts.

The Witness: The facts as to whether it was sanitary or unsanitary?

The Court: Just what you saw.

The Witness: I saw these tanks that Mr. Candler described and I saw a man working at that time around there, I could not be positive whether it was a man who testified yesterday, whether he was employed there or not, but he was dressed — certainly not in his undershirt. There was no evidence of tobacco. The platform upon which this kettle rests was clean. I went down into the basement—I

didn't go up to look into the cooling tanks which were suspended, but I did see the floor of the basement and the mixing tanks and they were clean.

BY MR. HIRSCH:

Q. You heard Howard Candler describe the way in which Coca-Cola was manufactured. Was that the way you saw it or not?

A. That is the way I saw it.

Q. Have you seen the manufacture of Merchandise No. 5?

A. I have.

Q. Do you know the amount of coca leaves used in the manufacture of No. 5 and of cola nuts?

A. I do.

Q. Will you state the amount?

A. 380 pounds of coca leaves used and 125 pounds of cola nuts to make 900 gallons of Merchandise No. 5.

Q. Have you seen this Merchandise No. 5 used in the manufacture of Coca-Cola syrup?

A. Yes, sir.

Q. Where was this that you saw this manufacture of Merchandise No. 5?

A. Maywood, New Jersey.

Q. Did you take any samples at Maywood, New Jersey?

A. Yes, sir; after I finished watching the process by which No. 5 was manufactured, samples were taken by me and labels were fastened on it with the date and my initials and they were sealed up with car seals and sent to several different chemists, some were sent to Dr. Vaughn and some to Dr. Wesener, and Dr. Mallet and Dr. Satler, and myself.

Q. Did you receive any samples from Howard Candler?

A. I received two samples from Howard Candler.

Q. What did you do with those samples?

A. I examined them to see if there was any difference between them.

Q. Did you find any difference?

A. I found a difference in flavor.

Q. Could you obtain the entire amount of caffeine from a substance containing caffeine by the use of animal charcoal?

A. You mean if the solution of caffeine were passed through charcoal — I could not.

Q. Did you make an analysis of Merchandise No. 5?

A. I made an analysis of Merchandise No. 5 and determined the caffeine in it. I detected qualitatively the presence of tannin and also of chlorophyll.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. When did you go to Maywood, New Jersey, for the purpose of going through the factory?

A. I do not remember the exact date, but I can tell you within a week or two. It was the latter part of March, 1910, or the first part of April.

Q. At whose instance?

A. At the instance of Mr. Hirsch:

Q. Of counsel for the Coca-Cola Company?

A. Yes, sir.

Q. And you were sent there by that Company?

A. Yes, sir.

Q. Your Company manufactures caffeine for the Coca-Cola Company

A. My company?

Q. Yes.

A. No, sir; I am not associated with any company.

Q. Are you not consulting chemist or associated with some one who supplies caffeine to the Coca-Cola Company?

A. No, sir.

Q. Haven't you ever been?

A. Never. I want to amend that answer to this extent, that I have never been connected with them as an employe. They have consulted me.

Q. You are consulting chemist of the Monosanto Chemical Works?

A. I am not.

Q. You were?

A. You will have to define what you mean by consulting chemist before I answer you yes or no.

Q. Were you consulting chemist of that company — you know what that is?

A. They have consulted me, yes, on one or two occasions, but not as a general thing.

Q. And that company supplies caffeine to the Coca-Cola Company?

A. That company supplies caffeine to the Coca-Cola Company.

Q. Did you appear before the Congressional Committee or the Board of Food & Drug Inspection, on behalf of the Monosanto Chemical Works?

A. I appeared before the Food & Drug Committee on behalf of the Montasanto Chemical Works and also on behalf of a great many other clients as well.

Q. Ah, a great many other clients. That is what I wanted to find out. And this is one of your clients?

A. Yes, sir.

Q. How came you to go to Atlanta — what was your object in going there?

A. My object in going there was to consult with Judge Candler in connection with this case.

Q. That was in November or December of 1909?

A. It was in November or December of 1909?

Q. That is very much colder weather down there than it is in September or October?

A. I suppose so.

Q. You didn't see anybody in the factory just wearing an undershirt at that time?

A. No, sir.

Q. What was this process of making Merchandise No. 5 which you say you saw — what kind of process were the leaves put through?

A. I promised Dr. Schaeffer, the same as Dr. Mallet did, that I would not divulge anything I saw in the way of process of the preparation of Merchandise No. 5.

Mr. Hirsch: We will get permission from Dr. Schaeffer.

The Court: That is all right, but if any more witnesses are put on the stand who won't testify what they saw at Dr. Schaeffer's establishment, they will not be permitted to testify.

Mr. Hirsch: We will put on no more. If the witness will do it himself, we are perfectly satisfied.

The Court: You may wait.

Mr. Miller: Conducting my cross-examination in the order in which they took up the matter, that is the next point in the cross-examination.

The Court: He may be put back on that, but if there is anything else, you can go on.

Mr. Miller: But that is the way they conducted the examination.

The Court: Oh but you go on.

Mr. Hirsch: If Dr. Caspari is willing to do so, I prefer that he go on and state the process. I would just as soon have him state it in the court room as to give it to the government chemist and counsel. It will save time if he goes on.

The Witness: That puts me in a rather embarrassing position with respect to Dr. Schaeffer.

Mr. Sizer: The court requires you.

The Witness: I signed an agreement that I would not divulge that process.

The Court: I will let the witness wait. I understand the Doctor is in the city and he can have an opportunity to talk with him, but witnesses should not come into the court

unless they are prepared to answer.

Mr. Sizer: We had these witnesses go there not for the purpose of ascertaining the exact process but simply to be able to testify that those substances were in the production of that product. We did not suppose it would be necessary to go into the process, and we are in no manner responsible for the contract that Dr. Schaeffer required these witnesses to sign. We want to get their testimony and we are going to insist upon them answering, because we do not want their testimony to be stricken out if we can help it.

The Court: Proceed.

BY MR. MILLER:

Q. What size samples were those that you received from Atlanta?

A. About two fluid ounces each.

Q. How did you receive them?

A. They came by registered mail.

Q. Do you know how long they had arrived in St. Louis before you received them?

A. I do not. I do not remember the post-mark.

Q. You travel in and out of St. Louis, go about a good deal?

A. A good deal, yes.

Q. Did you receive any letter or letters in connection with the transmission?

A. Yes, sir.

Q. Have you any of those?

A. I have not them with me. I have them at the hotel.

Q. Would you produce them to counsel? I do not want to have them filed unless I find something in them that is relevant to the case.

A. Yes, sir.

Q. I would like to have an opportunity of inspecting them before your testimony is closed.

A. All right.

Q. Now, you do not, of course, know whether or not the mixture sent you was the genuine Coca-Cola syrup or not in those boxes?

A. No, sir; I did not analyze it chemically.

Q. Did you or not analyze this Merchandise No. 5 chemically?

A. Yes, sir, I did.

Q. What was your analysis of that?

A. I made a quantitive determination only of the caffeine in it and the chlorophyll. The tannins were determined qualitatively.

Q. Chlorophyll is a substance common to a number of substances — practically all vegetation, is it not?

A. All green vegetation.

Q. So that did not particularly prove anything, to find chlorophyll, you find that in various kinds of leaves?

A. It proved there was some leaf present.

Q. That is chlorophyll?

A. Yes, sir.

Q. You determined that only qualitatively and not quantitively.

A. Only qualitatively.

Q. What was the other substance you found in it besides chlorophyll?

A. A tannic-like substance that Dr. Mallet spoke of.

Q. What quantity of that did you find?

A. I said I did not determine that quantitively.

Q. Why didn't you determine that?

A. What is that?

Q. Why didn't you — why is it you did not determine that?

A. Because it could not be determined quantitively.

Q. Why not?

A. Because I did not know how.

Q. Then you simply found a substance there that was tannin or a tannin derivative and you don't know how to determine how much there was of it?

A. That is a fact, and further, that tannin-like substance was the same kind of a substance as in coca leaf and some in Coca-Cola syrup.

Q. How do you know that?

A. Because all three treated in the same way responded to the same reaction.

Q. Tell your treatment.

A. In the first place an infusion was made of the coca leaf and that served as a material on which the test was made for the coca leaf.

Q. But you have not given what you did, you simply say an infusion.

A. I will cover it if you will let me finish. In the case of Merchandise No. 5, it was extracted, first evaporated down, concentrated, to get rid of the alcohol present, and then diluted with water and extracted with acetic ether.

Q. How much water was put in?

A. About enough to bring it back to the original volume and then extracted with acetic ether and that acetic ether was also drawn out and evaporated to dryness on a water bath, and that residue treated with water and filtered and that solution was the solution that was tested in the case of Merchandise No. 5 for the tannin-like substances.

Now, in the case of Coca-Cola syrup the same treatment

was resorted to as in the case of Merchandise No. 5, that is, the tannin-like substances was brought into aqueous solution after having been extracted from the Coca-Cola syrup by acetic ether. So we have the infusion of the Coca leaf, solution, the solution obtained by the acetic ether extracted from Merchandise No. 5, and the solution obtained by acetic ether from Coca-Cola syrup. The separate portion of each of these was treated with ferric chloride and potassium serri cyanide and ammonia, treated with lead acetate, treated with Schling's solution, a solution of caustic soda, a solution of gelatin, and treated with a solution of cinchonine and all reacted the same way, each reacted like the other.

Q. What did that prove to you, and how and why?

A. It proved to me there was a substance in all three of these liquids the infusion of coca leaves and the Merchandise No. 5 and the Coca-Cola syrup which was identical in that it responded in the same way to these reagents, and that substance was in tannin or a tannin derivative.

Q. Now, how could you know that was a tannin or a tannin derivative?

A. I do not know which it was.

Q. But how could you know it was either a tannin or a tannin derivative?

A. On account of its reaction with these reagents which were used specifically to determine the presence of the tannin.

Q. By these experiments given in detail, you determined that there was either a tannin or a tannin derivative in these three compositions to start with?

A. Yes, sir, and furthermore, the tannin that reacted to those reagents differed from any tannin that I know of, insofar especially as its reaction in gelatin solution and cinchonine sulphate is concerned.

Q. But you just stated, if I understood you, that you did not known how to determine or separate the tannin.

A. No, sir; I didn't say that. You are confusing the quantitive determination and the qualitative proofs of the presence of tannin. I said I did not know how to determine quantitively the amont of tannin.

Q. If you don't know how to determine quantitively, how do you know you didn't have something else in the quantity if you cannot isolate something, how you can tell that is the only thing.

A. I can tell a great many instances where you can qualitatively prove the presence of a thing and be unable to determine it quantitively.

Q. But if you cannot isolate a substance and put it to

itself, how you cannot tell there is some other substance mixed with it?

A. I can tell it by its reaction with certain agents even though other substances are mixed.

Q. If the other substances are easily assimilated and of like character?

A. I can give you an approprate example. In the case of balsam copaiba, and gurjin balsam. I can detect the presence qualitatively of gurjin balsam and balsam copaiba, but I cannot determine it quantitively.

Q. You are not to get me into that realm. My question is this, if you cannot isolate a substance so as to tell whether or not that is all the substance you have present, how sent, can you determine that is the substance you are treating?

A. If the substance is present and cannot be isolated, it is still possible to prove its presence without being able to say how much is present, by qualitative reaction.

Q. Then you cannot say that you do not say how much of any given substance was present in any of these analyses that were made?

A. Not of the tannin-like substance. I said that fifteen minutes ago.

Q. How is tannin affected by the evaporation of alcohol?

A. How is tannin affected by the evaporation of alcohol?

Q. Yes.

A. I do not know that it is affected at all, if the evaporation is carried on on the water bath.

Q. You do not think that tannin would be affected?

A. Not to interfer with its detection.

Q. Would it be affected so far as you know?

A. No.

Q. Did you devise the methods of analyses that you resorted to, or did you follow them from some one else?

A. Analyses for what?

Q. In the instances where you say you analyzed Coca-Cola syrup and Merchandise No. 5.

A. When I analyzed the Coca-Cola syrup, the method I used is practically the one that I worked out myself.

Q. That is your own method?

A. Practically.

Q. How about your analyses in the other instances?

A. In the Merchandise No. 5, the method to determine the caffeine was my own, and the method for determining the chlorophyll was gotten from a German book, Garrendurff's on plant analysis, and the tests for tannin were

submitted to Dr. Mallet. They were not mine.

Q. They were tests that Dr. Mallet suggested to you?

A. Yes, sir.

Q. That is the Dr. Mallet that testified in this case on behalf of the Coca-Cola Company?

A. Yes, sir.

Q. Where were you and Dr. Mallett's conferences held with respect to these analyses?

A. They were carried on by correspondence.

Q. Have you that correspondence?

A. I have not.

Q. Did you not retain it?

A. I have some of it but not all of it. As I remember it, the correspondence in connection with this tannin-like substance, in the first place —

Q. I don't want you to state the contents.

A. No, I am not, but I want to tell you how it came to be through correspondence and through what channels. I think Dr. Mallet sent Mr. Hirsch a memorandum of these tests and they were sent out by Mr. Hirsch to various chemists who were working on this problem.

Q. And you got one of those?

A. I got one of those memorandums.

Q. So that if you had never heard of Dr. Mallet's experimentation, or Dr. Schaeffer, you would not have known how to go about this.

A. That does not follow at all. If I hadn't had the methods that Dr. Mallet worked on, I would probably have looked it up as he did and gotten the same one.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What percent of alcohol did you find in No. 5?

A. I made two determinations and in one I found 16.2 and in the other 15.76 per cent.

Q. Was there anything else except coca leaves and cola nuts and alcohol used in the manufacture of Merchandise No. 5?

Mr. Miller: I object to that question without we are permitted to cross-examine.

The Court: There will be no further examination about that.

BY MR. HIRSCH:

Q. Did you think the test submitted by Dr. Mallet to ascertain the tannin in Merchandise No. 5 was a good one?

Mr. Miller: We object to that.

The Court: I think he is qualified to express an opinion on that.

Mr. Miller: My point is he said he did not know how to separate or isolate this tannin at all.

The Witness: I never admitted that.

Mr. Miller: He said he did not know how to do it at all and did not know now.

The Court: The exception is overruled.

The Witness: Yes, sir.

BY MR. MILLER:

Q. How much Coca-Cola syrup did you use in making the Coca-Cola test?

A. Fifty grams.

Q. That was a mixture that someone else sent you from Atlanta?

A. I made two analyses of Coca-Cola. I imagined you were referring to the one sent from Chattanoga.

Q. No, I am referring to the one sent you from Atlanta.

A. I did not analyze that for caffeine — a difference was detected between those two samples but each of which was about two fluid ounces in volume, and I detected a difference in flavor. The sample I analyzed was sent from Chattanooga by a man named Foster.

BY MR. MILLER:

Q. It was stated on yesterday that this witness received two bottles from Atlanta, one of Merchandise No. 5 and the other of Coca-Cola syrup.

Mr. Sizer: You are mistaken, if you will pardon me. Mr. Howard Candler said that he sent two bottles to Doctor Caspari, one of Coca-Cola syrup, the other of the ingredients of Coca-Cola syrup, omitting the Merchandise No. 5.

Mr. Miller: Take it that way, then. My examination of him with respect to the Coca-Cola syrup was upon the syrup that he analyzed, the Coca-Cola syrup which Howard Candler identified, and I object to any that has not been identified as Coca-Cola syrup.

Mr. Hirsch: As I understood the witness, he said that he received a sample from Chattanooga and bought one in the open market and those are the two he examined.

The Court: He stated that but Mr. Miller objects to the one from Chattanooga and you must connect that.

Mr. Miller: Did the witness state that he bought one in the open market?

The Court: Yes, he said he bought it and it was analyzed, and he got the same results as to caffeine.

Mr. Miller: Where did you buy this?

The Witness: St. Louis.

Mr. Miller: When was that?

The Witness: That was bought about in the month of April, 1909.

Mr. Miller: In April, 1909?

The Witness: Yes, sir.

Whereupon a recess was taken until 12:15 P. M. same day.

AFTER RECESS.

Court met pursuant to adjournment for recess at 12:15.

CLAIMANT'S EVIDENCE CONTINUED.

CHARLES E. CARPARI resumed the stand for further examination, testified:

BY MR. HIRSCH:

Q. Now you stated that you made an analysis of coca cola syrup by going to a drug store and purchasing some, and this took place in April, 1909?

A. April, 1909.

Q. And what was the purpose of this analysis?

A. A friend of mine asked me to analyze a glass of coca cola for him to tell him how much caffeine was in there.

Q. Were you in the employ of the Coca-Cola Company at that time?

A. No, sir.

Q. In no way?

A. No, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Are you familiar with the tannin that is found in the pilocarpus leaves?

A. You mean as distinguished from other tannins?

Q. Yes.

A. No.

Q. Are you familiar with the tannin found in the coca leaves?

A. I am familiar with these reactions I have mentioned this morning.

Q. What experience is that?

A. The experience I have outlined of examining these various samples for it.

Q. That is the extent of your experience?

A. Yes, sir.

Q. Are you familiar with the tannin in the belladona leaves?

A. Not distinctively from other tannins, no.

Q. Then your only experience in he determination of tannin has been the experiments which you have outlined this morning?

A. Yes, sir. My experience with the tannin in the coca leaves is in the analysis of the three samples I have made, whatever it is is in all three of them.

Q. So far as you know it might have come from the cola, it might have come from the pilocarpus or it might have come from belladonna?

A. Not from cola.

Q. Is there tannin in cola?

A. Yes, sir, but it will not react as tannin in making tests—

Q. How do you know it?

A. It does not respond to these reactions.

Q. Have you tried it?

A. Yes, sir.

Q. And when did you try it?

A. The same time as I started the other tests on Merchandise No. 5 and Coca-Cola syrup and eroxythoxlyn coca leaves.

Q. Now you said in this Coca-Cola syrup you had a mixture of coca and cola, and you say tannin is in each?

A. Yes sir.

Q. You did not separate the tannins?

A. No sir.

Q. Well, then, so far as you know it might be kola tannin you found?

A. No sir; infusion of kola nuts alone does not react as infusions of coca leaves does.

Q. And that is the only reason you have for saying that?

A. Yes sir.

Q. What are the specific actions for conducting or detecting I mean, these tannins?

A. As I enumerated them they are first, the fact they are present by lead acitate.

Q. That is common in all tannins?

A. Yes sir.

Q. All right?

A. And the reaction with ferrichloride salts.

Q. That is common to many?

A. Yes sir. And the ferricyannide reaction and akmonia—

Q. That is common to many?

A. Yes, and Fehling's solution.

Q. That is common to many?

A. Yes sir. The brown coloring with solution of caustic soda.

Q. That is common to many?

A. Yes.

A. And the reaction with a solution of gelatine and with a solution of cinchonius sulphate.

Q. And it is true that is common to many?

A. No, I don't think it is common to many.

Q. Is it common to any others?

A. Not that I know.

Q. That means you know of no others. This is the first experiment you made with respect to tannin?

A. Oh, no, not the first experiments, but the first time I have used these reactions with tannin from the coca leaves or cola of Merchandise No. 5.

Q. That is so far as you know that is not common to any others?

A. Yes sir.

Q. Now what other reactionary tests did you resort to aside from them, any?

A. No.

Mr. Hirsch: Is there any tannin you know of that is common to reaction of all tests?

The Witness: No sir.

BY MR. MILLER:

Q. They are common to all except this last one you enumerated, you admit that don't you?

A. No, all except the gelatine and cinchonium sulphate.

Q. That was the last one you mentioned?

A. Yes sir.

Q. And so far as you know there may be very many in that class ——

Q. You don't pretend or profess to be a specialist in that line?

A. I don't profess to be a specialist in tannin analysis.

Mr. Sizer: He was asked to bring a letter here and he said he would produce it.

Mr. Miller: Well if he has it let him hand it to me. If there is any thing I wish to bring out I will do so.

The Court: A note may be made by the stenographer that the letter was handed to counsel for the government.

Mr. Miller: I do not care to cross examine on it; it is a letter from Mr. Hirsch.

Mr. Sizer: Do you want to put it in evidence?

Mr. Miller: There isn't anything in it that is material to the case; I don't object to its going in.

The Court: Don't dispute about it. If either side wants it, it may be filed; otherwise not.

(Witness Excused)

J. F. JOHNSTON

The next witness called by claimant, of lawful age, first

duly sworn, testified:

DIRECT EXAMINATION

BY MR. HIRSCH:

Are you connected with the local Coca-Cola bottling works of Chattanooga?

A. Yes, I am proprietor of it.

Q. Were you proprietor of it back in October 1909 at the time this seizure took place?

A. Yes, sir.

Q. Did you send any samples, Mr. Johnston, out of the forty barrels and twenty kegs seized in this case to any person and if so state the persons to whom you sent the samples and the dates?

A. I did send quite a number of samples. I will have to refer to the receipts to recall about them.

Q. Well, refer to the receipts that you have—what receipts do you refer to?

A. Express receipts.

Q. The receipts that were given you by the agents of the Express Company?

A. Yes sir. On 11-29-09 I sent one to S. P. Sadtler, Philadelphia; 12—2—09 one to J. A. Wesener, Chicago, Ill. December the 7th 1909, one to Dr. Walter S. Haines, Chicago, Ill. January, I believe the 14th, I sent two to C. F. Chandler New York; on the 19th of January 1910 I sent two to R. W. Emerson, Boston, and on 11-22-09 I sent one to Caspari, C. E. St. Louis, and one to W. S. Haines, Chicago; one to L. Vielox, St. Louis.

Mr. Miller: Back there you said one to Chicago?

The Witness: Another one in addition to that one; another one to J. A. Wesener, Chicago and one to V. C. Vaughn, Ann Arbor Michigan.

BY MR. SIZER:

Q. Were those samples Mr. Johnston all drawn out by you personally?

A. Yes sir, they were selected by me.

Q. Were they all of the bottler's syrup or fountain syrup or some of each?

A. Some of each; I mentioned on the package which it was whether bottler's or fountain syrup.

Q. So that each of the packages would bear a mark indicating whether it contained the bottler's or fountain syrup?

A. I so marked it.

Q. How long have you been conducting this bottling works here Mr. Johnston?

A. I have owned it several years; I don't remember

when I did buy it, 8 or 9 years ago.

Q. Have you gone over your list of sales in order to determine whether or not the amount of the bottled product that is sold varies at different seasons of the year?

A. Very materially, yes, I have.

Q. About what is the variation between the summer and winter months, which months is the greatest?

A. I never averaged the entire summer months as against the winter months. I have taken the warmest month in the summer as against the coldest month in the winter.

Q. You may state in that way what is the variation between the winter and the summer months?

A. The sales decease from 60 to 70 per cent—

Q. How do you mean?

A. The sales for June or July or August, I don't recall which month I used, but I used the warmest month as against January and Febuary, it was from 59 to 72 per cent in 7 or 8 years.

Q. Which do you mean it will average the greatest?

A. It is the highest in the summer and falls at that rate against the winter month.

Q. What do you say then the sales in the winter months are as compared to the summer months, how much less?

A. From 79 to 51; two per cent if I remember correctly.

CROSS-EXAMINATION
BY MR. MILLER:

Q. Now, this product that was seized, Mr. Johnston, was received from the railroad company, the Western and Atlantic Railroad in unbroken packages?

A. Yes sir.

Q. And after it was received and before it was broken Inspector Lynch opened one package?

A. He did not— it was broken then; we had broken a barrel and I think we had used a barrel or half of it.

Q. You had not made any change at any rate in the composition of the mixture?

A. No sir.

Q. You gave him just what was sent to you?

A. Yes, he got just what was seized of course, and we took out of that and sent to these names I gave.

Q. And the remainder of the packages that were seized were unbroken?

A. If I remember correctly they were unbroken.

Q. And they came in from the Western and Atlantic road?

A. They were unbroken until we went into them; we took some samples out if I remember.

Q. These packages came in to you in the usual course of shipment?

A. Yes sir

Q. From Atlanta to Chattanooga?

A. Yes sir.

Q. Over the Western and Atlantic Railroad?

A. I think so; sometimes they come over the Southern.

The Court: There is no question raised on that, the answer admits they were received and as interstate—

Mr. Miller: Not in the language of the statute.

The Court: He admits they were received in unbroken packages; they admit it.

Mr. Hirsch: We are not trying to disprove this fact by the witness.

Mr. Miller: I am trying to prove it by him.

The Court: It is already proven. I think it is admitted I think you proved it by Mr. Dobbs.

BY MR. MILLER:

Q. How much of this mixture was sent to Dr. Sadtler Mr. Johnston?

A. From this receipt that I hold it was one gallon.

Q. Transmitted how?

A. By express from here over the Southern Express line.

Q. How much was sent to J. A. Wesener?

A. I have two receipts.

Q. The first one?

A. The first one, one gallon.

Q. And sent how?

A. By express.

Q. Was this sample that was sent to Dr. Sadtler from bottlers syrup?

A. I have analysis marked on the sample—I mean the kinds on these receipts, that is the only record I have.

Q. And you don't know which was the bottlers syrup and which was the fountain syrup?

A. No, I don't know now.

Q. How much did you send to Dr. Haines?

A. Dr. Walter S. Haines, one gallon in one place and I think—

Q. Was that sent by express?

A. Yes, in both instances. I have two packages sent to him.

Q. A second one was one gallon also?

A. Yes, sir.

Q. What was the occasion for sending but one sample to—

A. I was told to send them.

Q. You don't know the reason for sending the two samples?

A. I can give the reason but I don't know that I was told.

Q. You sent how much to Mr. Chandler?

The Court: Were they all one gallon packages?

The Witness: Yes, sir.

BY MR. MILLER:

Q. And all sent by express?

A. Yes sir.

Mr. Miller: With the exhibit when it arrives which we will ask the witness to file when it comes, we are through with him.

Mr. Sizer: What was that?

Mr. Miller: This exhibit he is to file; I have not seen it yet.

(Witness excused.)

THOMAS G. MORRIS,

the next witness called by claimant, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION

BY MR. HIRSCH:

Q. What is your name?

A. Thomas G. Morris.

Q. Where do you live Mr. Morris?

A. Philadelphia, Pa.

Q. What is your occupation?

A. Magistrate of Court No. 19, Philadelphia, Pa.

Q. How long have you held that position?

A. Several years.

Q. Mr. Morris, I will ask you to state whether or not you know Edwin H. Cory?

A. I do.

Q. When did you first meet Edwin H. Cory?

A. Fifteen years ago.

Q. Do you know his family?

A. Personally.

Q. Judge Morris, has Edwin H. Cory ever been in your court?

A. Yes sir.

Q. On what charge, under what circumstances?

A. On a warrent issued by me on affidavit of his brother.

Mr. Miller: I object—

BY MR. HIRSCH:

Q. Have you the warrant with you?

A. Yes sir.

Q. I will get you to produce it?

A. All right.

Q. Did Edwin H. Cory appear in your court in response to this warrant?

A. He was brought there by my constable.

Q. In response to this warrant?

A. Yes sir.

Mr. Miller: Is that the original paper?

The Witness: Yes sir.

Mr. Miller: Let me see it.

BY MR. HIRSCH:

Q. What transpired after Cory was brought to your court?

A. His brother and wife appeared there and brought their child with them and preferred charges sustained in the affidavit.

Q. Anything else Judge Morris?

Mr. Miller: The government was not present or represented at that time, that is incompetent, that is clearly incompetent, and I object to it.

The Court: The objection is sustained, that is not the way to impeach the witness, if that is the purpose of it.

Mr. Sizer: This is a witness whose testimony has been taken on the part of the government.

The Court: They might ask him on cross-examination

Mr. Sizer: The purpose of this is to show what was the matter with the man.

The Court: He may state that; he could not state what complaint his wife and brother made against him; if this witness knows what was the matter with him he can state.

BY MR. HIRSCH:

Q. Can you state what complaint was made against him?

The Court: You can't impeach a witness that way. If this witness knows what he was suffering from he may state it, if he knows of his own knowledge, if that is what you mean.

Mr. Sizer: I want to offer the warrant in evidence. This warrant shows that at that time he was charged with the crime of—

The Court (Interupting) That is'nt competent.

Mr. Sizer: But we want to prove it for the sake of getting the benefit of it.

The Court: I exclude it if that is the purpose for which it is offered. If you had asked that witness on cross-examination you would have been bound by his answer.

BY MR. HIRSCH:

Q. How long do you say you have known Edwin H. Cory?

A. Fifteen years.

Q. Could you state what his general reputation was in the community where he lived—

Mr. Miller: I object to that.

The Court: You may ask the witness if he knows the witness' general reputation in the community for truth and varacity, and if he knows it he may answer.

BY MR. HIRSCH:

Q. Do you know his reputation for truth and varacity in the community?

A. The only way I can answer that question is to state it was looked upon to be somewhat foolish.

The Court: That is not the question. You were asked if you knew his general reputation for truth and veracity?

The Witness: His general reputation is looked upon as good.

BY MR. HIRSCH:

Q. Do you know what became of Cory after he left your court?

A. Yes, sir.

Mr. Miller: I object to that.

The Witness: I do.

Mr. Hirsch: Where he was taken?

Mr. Miller: I object.

The Court: This proceeding was not in the nature of an inquisition of lunacy or any thing of that sort.

Mr. Hirsch: No, your Honor.

The Court: I think in that form the question is objectionable.

Mr. Sizer: I think your Honor might understand more about it if you will look at the warrant.

The Court: Let me look at it. (Examining warrant) The exception is sustained.

Mr. Hirsch: The only purpose of this question was that Cory testified he was taken to the Philadelphia hospital for the insane I want to show that this was the same Cory and he arrived on the same day.

The Court: If the witness knows he was insane—

Mr. Hirsch: I want to connect it up as being the same Cory is all. I want to prove that link in the chain.

Mr. Sizer: That this man Cory was sent to the hospital by this magistrate on a certain date.

Mr. Miller: He admits he was sent to the hospital.

The Court: Then that is admitted.

Mr. Sizer: It is shown he was sent to the hospital and I want to show by this witness he sent this particular man there in order to identify the man as the same man.

The Court: You admit he was sent to the hospital.

Mr. Miller: That is he went to the hospital for treatment just as the man said he did.

The Court: On a certain date.

Mr. Sizer: That is all right.

(The warrant offered in evidence but excluded was as follows:

City of Philadelphia, The Commonwealth of Pennsylvania.

To any officer or constable of said City, Greeting:

You are hereby commanded to take the body of Edwin H. Cory 1646 N. 29th if he be found in the said City, and bring him before me, Thomas G. Morris, Magistrate of Court No. 19 of the City of Philadelphia to answer the Commonwealth of Pennsylvania of a charge founded on the oath of C. Oliver Cory, sodomy, and for so doing this shall be your warrant. In witness thereof, I have hereunto set my hand and affixed the official seal of the said court the 13th day of July A. D. 1910.

THOMAS G. MORRIS,
Magistrate of Court No. 19.

Office 2304 Ridge Avenue. }
City of Philadelphia. } ss.

Personally appeared before me, the subscriber, Thomas G. Morris, Magistrate of Court No. 19 of the said City, C. Oliver Cory who being duly sworn, according to law doth depose and say, that at and within the said City that Edwin H. Cory has committed sodomy upon the minor child of the deponent within the past two years in the county of Philadelphia, against the peace and dignity of the commonwealth of Pennsylvania, and further deponent saith not.

C. Oliver Corry,
1721 N. 20th St.

Sworn and subscribed to before me
this 13th day of July A. D.
1910.
Thomas G. Morris,
Magistrate of Court No. 19.)

(Witness Excused)

J. F. JOHNSTON

recalled for further examination, testified as follows:

BY MR. MILLER:

Q. Mr. Johnston, as a member, or one of the members of the Coca-Cola bottling Company, of Chattanooga I will ask you whether or not you send out your product in that character of bottle?

A. That is one of the bottles; we have bottles made at two different factories, and that is the bottle made at a local factory.

Q. Now examine the words Coca Cola on that bottle and state if any hyphen between the words "Coca and Cola"?

A. No, sir.

Q. Now examine the top of bottle and state if any hyphen between those words there?

A. No sir, not at the present; there was last year and some time before.

Q. But none on it at present?

A. No sir.

Mr. Miller: We file this bottle in evidence as Exhibit No. 1 to Mr. Johnston's deposition or testimony.

RE-EXAMINATION
BY MR. HIRSCH:

Q. Mr. Johnston, are these bottles made by your company or by the Coca-Cola Company of Atlanta?

A. Made on our order.

Q. Has the Coca-Cola Company of Atlanta any thing to do with the manufacture of them?

A. No sir.

Mr. Sizer: I move to exclude that exhibit because it is not connected with the claimant Coca Cola Company.

The Court: It is over-ruled. I will state the reason of that holding, it bears on the question of distinctive use—of course it is a question of fact as to how it may have been sold, but I think it has some bearing on that question.

A. SHERMAN CLOUTING,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. What is your name?

A. A. Sherman Clouting.

Q. What is your occupation?

A. A physician.

Q. How long have you been a physician?

A. I Graduated at the Jefferson Medical College in

the year 1896.

Q. Have you been practicing since?

A. Practically so. I could not tell you just exactly the date that I took the State Board examination but it was within a year afterward I judge, somewhere about that.

Q. What experience have you had in the medical profession?

A. I practice general medicine and along with that I have worked on nervous and mental diseases for a number of years. I was physician for the Alms House.

The Court: Do you want to examine this witness as to that other witness?

Mr. Hirsch: Yes.

BY MR. HIRSCH:

Q. What hospital are you connected with?

A. The Philadelphia General Hospital.

Q. How long have you been connected with that?

A. I think about a little over three years.

Q. What is your connection with the hospital?

A. I am Examiner for the Insane there.

Q. Do you know Edwin H. Cory?

A. I examined him on or about July 16, 1910.

Q. At the time you examined Edwin H. Cory, did you know anything about the case in which you are now testifying?

A. No, sir.

Q. In order to make the examination of Cory and similar cases, is it necessary to get a statement from the witness of the history, etc.?

A. Yes, sir; we examine each patient by the bedside, each patient as they come into the ward.

Q. Will you state in detail the examination you made of Corry?

Mr. Miller: I object to any communication that took place between him and Cory.

The Court: The objection is sustained.

Mr. Sizer: I submit that the statements of the patient to the physician may be proved independently. Statements to a physician of the location and nature of the symptoms made for the purpose of diagnosis and treatment are not only received as to the existence of a habitual condition as stated, but in many jurisdictions if made to a medical attendant they are of more weight than if made to other persons, statements in connection with a diagnosis; but statements as to an injury or the manner in which an injury was inflicted, are not.

The Court: That is true if you are only trying to prove

that he was insane at the time he was examined, but you are offering that to contradict some of his statements.

Mr. Sizer: We offer that to show what was really the matter with that man at the time he claims to have been suffering from the effects of Coca-Cola.

The Court: You are really trying to contradict the statements he made and I think you cannot do that. You should have laid the basis for contradiction by asking that witness.

Mr. Sizer: We did not know anything about it at that time. We want to except to your ruling.

BY MR. HIRSCH:

Q. Did you make an examination of Edwin H. Cory?

A. Yes, sir.

Q. From the examination you made of Edwin H. Cory could you tell from what he was suffering?

A. Insane at the time I examined him.

Q. What were his symptoms?

A. He was depressed, apathetic and he heard distant music in his ears, he said.

Mr. Miller: Just tell us what you saw, not what he said — just what you know.

A. I may as well say that anyone's examination and observation of a person amounts to little unless you can tell what he says:

BY MR. HIRSCH:

Q. Tell the results, not what he said.

The Court: He may tell any symptoms that this person gave him, but he cannot state what was the cause stated by the person. He cannot state that. The witness' statements on the stand cannot be contradicted in that way, but he can tell what the witness said that he suffered.

A. As I said, he was depressed and apathetic, and he said ——

Mr. Miller: I object to that.

The Court: I ruled that he can state that.

A. He said he saw faces of people around him at night, that he heard distant music in his ears. He said he got very melancholy at times and had suicidal ideas, and when I asked him if he saw any other visions he said yes, he had seen the devil once or twice and the devil had touched him once, and when I asked him — I couldn't give the exact words I asked him, but we usually say: "What is the trouble?" or "What are you doing here?" and he said he was arrested for playing ——

Mr. Miller: We object to that.

The Court: Any facts of that sort you cannot state, but

you can say what he said about his symptoms but not what brought him there. The line is a very close one and it is hard to pursue but I think I have made it plain. Proceed.

A. I do not exactly understand my position with regard to the testimony.

The Court: To make that clear to you, this party has been examined as a witness in this case and he stated certain facts which brought about his condition. Now, you are permitted to state the symptoms of his disease as they appeared to you and the things that he said to you touching his condition, but you are not permitted to make a statement or to repeat statements which he had made to you of things that might contradict his statement. That is not the way to contradict a witness.

A. Part of what he told me, that I was going to relate, has a great deal of bearing on this subject.

The Court: No matter as to his previous history, so far as he related it to you, as distinct from the symptom present.

The Witness: May I tell what he told me he did?

The Court: What he had previously done?

The Witness: As to his habits.

The Court: As to his personal habits, all matters of that kind you cannot state, but you can state the symptoms as he described them.

General Cox: He has already stated that he was insane at the time and his statements certainly would not be evidence.

BY MR. HIRSCH:

Q. Could you tell as a physician and as an expert what caused Cory's trouble?

A. Well, I think so; it was a condition that he was born mentally — I may say — I won't say that he was congenitally neuropathic.

Q. What does that mean?

A. That he had an unstable nervous system, probably, when he was born, and that he had habits engrafted upon that which in my opinion gradually turned him to the condition in which I would have made a diagnosis of his case ——

Q. What kind of habits would contribute to that?

A. He said he practiced ——

Q. Don't tell that, but tell me what kind of habits would contribute to that condition.

A. Masturbation, for instance.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What do you mean by neuropathic, — a nervous

temperament?

A. Not exactly that. I mean a man who had an unstable nervous system congenitally.

Q. That means that his nervous system is not normal?

A. No, sir.

Q. A great majority of people are in that abnormal condition from a nervous condition?

A. They are not all neuropathic, however.

Q. But a great many are not normal?

A. Yes, lots of people are not normal.

Q. This man had a disordered brain?

A. When I examined him, yes.

The Court: When was this man's deposition taken?

Mr. Sizer: Last October.

The Court: After he was examined by the doctor.

Mr. Miller: No, four years ago.

The Witness: No, about two and a half or three months.

Mr. Miller: I thought you said July, 1906.

Mr. Sizer: No; July, 1910.

Mr. Miller: I beg pardon; I thought you said 1906.

(Witness excused.)

DR. HENRY A. NEWBOLD,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your name?

A. Henry A. Newbold.

Q. What is your profession?

A. Physician.

Q. How long have you been so engaged?

A. Since 1893. I graduated from the University of Pennsylvania in medicine. Before that I was graduated from the Philadelphia College of Pharmacy in 1870.

Q. Have you been practicing medicine since 1893?

A. Yes, sir.

Q. Have you been devoting your attention to any special line of work?

A. Since about 1895 or 1896 I have been to a greater part devoting myself to nervous diseases.

Q. Are you connected with any hospital in Philadelphia?

A. The Philadelphia General Hospital, for the past ten years.

Q. What is your connection with that?

A. I am an examiner for the insane.

Q. Explain exactly how that is done.

A. According to the laws of Pennsylvania the certification of an insane person requires the signature of two physicians.

Mr. Miller: We object to that.

BY MR. HIRSCH:

Q. Just state what you do.

A. We examine the patients brought into the detention ward.

Q. Did you examine Edwin H. Cory?

A. I did.

Q. Do you remember when you examined him?

A. Somewhere between July 14 and July 16. I signed his commitment papers on the 16th and I examined him several days between July 14 and July 16, 1910.

Q. State the symptoms you found.

A. There was some confusion of ideas. He would talk somewhat disconnectedly. According to the ruling on the last witness, you won't allow me to say what he told us.

The Court: You may express your opinion on what he said to you without stating what he said, but you may take that into consideration in arriving at your opinion, and then finally state your opinion.

A. From all the symptoms and from the matters that he told me in answer to my questions, I decided that he was insane.

Q. Have you formed any opinion as to what caused his insanity?

A. I think he was always insane.

Q. You say you think he was always insane?

A. Yes, sir.

Q. From the symptoms he exhibited would you say in your opinion that he had been guilty of masturbation?

A. Yes, sir.

Mr. Miller: I object to that. I do not think that is proper at all. That is a collateral matter and it can only go to his impeachment, and in the next place I do not think it has any bearing whatever.

The Court: I will not admit it for the purpose of impeachment, but if the witness, who is an expert on insanity, from an examination of that person determined that he was insane and that it was produced by some other cause, I think that is competent, not as an impeachment but as substative independent facts.

General Cox: Your Honor will note that the witness says that he had always been insane.

The Witness: I would like to modify that to a certain

extent. The man was neuropathic always, an unstable nervous condition, and at the time I examined him he was actually insane. I would not say that he was always insane in that sense.

BY MR. HIRSCH:

Q. Give your opinion as to what caused this condition as you found it.

A. I do not know that I could give a cause for it. It was a congenital trouble. He was an unstable nervous character.

Q. What do you mean by congenital?

A. That it was born with him.

Q. In your opinion as an expert had he been guilty of any practices that contributed to his condition as you found it.

A. Yes, sir.

Q. What was that?

A. Masturbation.

Mr. Miller: I object to that, because I think that goes directly to impeachment.

The Court: The exception is overruled as heretofore with an exception.

Gentlemen of the jury, that testimony is not admitted for the purposes of impeaching the truthfulness of the statement made by the other witness, but simply for the purpose of enabling you to determine what was the cause of his diseased nervous condition.

BY MR. HIRSCH:

Q. State as an expert what effect masturbation has on a man, on the mind and nervous system.

Mr. Miller: I submit that is not pertinent or proper. There has been no basis laid for that hypothetical question at all.

The Court. That is overruled with an exception.

A. I could not say that it is an effect. It is a symptom of an unstable diseased mind. Of course, the more it is practiced the worse the patient gets. It weakens the mind.

The Court: If it is merely a symptom and not a cause, the evidence is excluded and on that answer it is excluded.

BY MR. HIRSCH:

Q. Would you say it is a symptom or cause finally weakening the mind?

A. It is one of the symptoms of a weak mind, the inordinate practice of masturbation, it causes a weakness of mind.

Mr. Miller: So you got it in both ways?
The Witness: It is pretty hard to explain.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Now, I ask you as a student in all of these diseases and disordered brains, and so forth, whether or not a man who was capable of operating as a street car conductor for eight years in the City of Philadelphia would be or could be — likely would be an insane man according to your point of view?

A. According to my point of view there are a great many insane persons at large, holding positions.

Q. Holding positions like that and are capable of holding positions?

A. He didn't hold it very long. They are capable of holding them certain times, and then something upsets them.

Q. Assuming this man held a position as street car conductor — or without assuming anything at all, would you say a man who was capable of holding a position as a street car conductor for six or eight years in the City of Philadelphia constantly was an insane man?

A. No, sir.

Q. What would you say?

A. He was not insane constantly.

Q. Then you would say he didn't have this congenital affliction that you speak of? In other words, it did not date from his birth?

A. How was that? I didn't understand you.

Q. Assuming that Cory or anybody else held a position as a street car conductor in the City of Philadelphia from five to eight years, would you or not say that he had had a disordered brain from his birth?

A. He might have had.

Q. He may have been an insane man from his birth?

A. Yes, sir.

Q. And yet held that position and discharged the duties of a street car conductor?

A. Yes, sir.

(Witness excused.)

DR. R. C. KELL,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you a practicing physician?

A. I am superintendent of the Chester County Hospital for the Insane.

Q. Where?

A. Embryville, Chester County, Pennsylvania.

Q. Were you connected with the hospital to which this man Cory was taken in the summer of 1910?

A. I was an assistant physician in the Philadelphia Hospital for the Insane and had charge of the receiving ward in the insane department when Cory was admitted, and I examined him.

Q. Did you assist in examining him?

A. I examined him alone.

Q. State the symptoms that you perceived, and then on those symptoms I want you to state what in your opinion was the matter with him.

A. The patient was admitted to the Philadelphia Hospital for the Insane, July 20, and I examined him. He was apathetic in appearance, more or less depressed. In conversation with him I found that his ideas were scattered, he could not hold to the questions that I put to him, his answers would ramble away from my direct questions. He admitted hearing voices and also said that people influenced his mind, that they controlled his actions.

Mr. Miller: You need not tell what he said about that.

The Court: I think that is competent.

BY MR. SIZER:

Q. Go on.

A. He said people influenced his actions to do both good and bad acts, and that at times he felt as though his mind had not been as good as it had been previous to his coming there.

Q. Now, from those symptoms, what did you conclude was the matter with him?

A. I concluded that the man was insane first, and from the symptoms that he showed I classed him as a psychopathic deficient in nature. This deficiency existed in all probability from his birth, and the character of his illness would make him liable easily to transgress from the straight and narrow way and do immoral things—be given to immoral practices, and so forth.

Q. Immoral practices, such as what?

Mr. Miller: I object to that.

The Court: He may only state that as related as a cause of the condition; if he knows any such he may state it. It is not a question of moral character, it only is competent as bearing on his mental condition.

BY MR. SIZER:

Q. What were the practices that led to that condition as evidenced by the symptoms you observed?

Mr. Miller: I object to that.

The Court: The objection is sustained. The Doctor knows my ruling; he can go on and answer within the ruling.

Mr. Sizer: He said immoral practice and I asked him what kind of immoral practices. He used an indefinite term and I wanted to get it definitely.

The Court: His objection is that his answer before that was not limited to practices which brought about the condition of insanity, and I sustained that objection. I limit the Doctor's answer to any practices that he found as an expert which in his opinion brought about the condition, which was the whole or a considerable part, of the cause of his mental condition.

BY MR. SIZER:

Q. In your opinion as an expert, what practices brought about or contributed to the condition of that man as you saw him in the hospital?

Mr. Miller: I object to that because it is not limited to the symptoms that he found there. That is too general. I insist that must be based on the symptoms as they appeared in this witness and not based on hearsay reputation or anything of that sort.

The Court: You will give your opinion, Doctor, as formed from your examination of the patient himself at the time you examined him, but in arriving at your opinion you may include statements made to you by the patient, although you are not to repeat the statements of the patient, but things that you heard from others are excluded, but you may give your opinion upon what he told you that day and what you saw.

A. The patient said —

The Court: Don't tell that.

BY MR. SIZER:

Q. State your opinion based on what he said.

A. I really — his answers, of course, to my questioning brought out things that were expressions that you might not get from direct questioning.

The Court: I have stated that you may answer the question and give your opinion based on what you saw and what the patient told you without repeating what the patient told you. You may state what your opinion was as an expert, based on what you saw and what he said.

A. I would say that the man was congenitally deficient.

some of the things that I brought out or that he told me spontaneously when I examined him showed me that the man was congenitally deficient.

Q. From your examination did you or not reach a conclusion that any practice in which this man had indulged had contributed to cause his condition?

Mr. Miller: I object to that. I do not think that is competent.

The Court: I will overrule the objection.

A. I would say that the practices that the man admitted to me —

The Court: Now you are telling what he stated. Can't you answer from what he said and what you saw that you came to a conclusion whether there were any practices that brought that condition? That is a very simple question.

A. I would say that patients suffering from the same mental weakness or insanity or insane patients are given to practices of an immoral nature and that they contribute in a way to his defective mental condition.

The Court: That last part of that answer is excluded.

BY MR. SIZER:

Q. I just want to know whether you are able to form an express an opinion from the examination you made and what he told you as to whether or not his condition was due to any practices that he had indulged in.

A. The practices were —

Q. Can't you form an opinion as to that as an expert?

A. Yes, sir.

Q. Now, if you can form an opinion, in your opinion what practice was his condition attributable to?

A. Well, masturbation and of course other things that he admitted. I did not consider contributing causes but that were expressions of mental weakness.

The Court: The last portion of that answer is excluded.

BY MR. SIZER:

Q. Now, give the man's condition.

The Court: I don't think you should go on on that.

Mr. Sizer: I am going on on something else.

BY MR. SIZER:

Q. Could that man's condition as you observed it at that time have been brought about by drinking a soft drink containing caffeine?

A. No, sir. I do not think that any external thing brought about his mental state, that it was congenital de-

ficiency existing from the time the man was born.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Now then, you have based your opinion in this case in part on what you observed in this man and in part on what he told you.

A. Yes, sir.

Q. And your opinion is that he was not born in a normal condition — that is, that he did not have a normal brain and that it had not become disordered after birth?

A. No, sir; I said the deficiency existed from birth.

Q. And continued up to the time he talked to you?

A. Yes, sir.

Q. And yet you took the statements of this insane or this disordered man as being true and have based your opinion on them, that is a fact, is it not?

A. Well, the man's condition was such thatI based my opinion on what I observed and the history I had received and what he told me.

Q. Do you say you based your opinion on what you received and what he told you, from what source did you receive any opinion?

A. In making an examination of an insane patient you have to lay some stress on what you get from the patient himself.

Q. But you said three sources; what you observed, what you received, and what you got from him.

A. Yes, sir.

Q. Now, what did you mean in that connection as to what information you received?

A. From the history, from the friends.

Mr. Miller: Now, I move to exclude the entire opinion that he has given as to this man's disordered condition because it was based in part on history given to him from the friends.

The Court: The motion is sustained.

Mr. Sizer: On examination in chief I asked him only for the opinion he reached from his examination that he made of the patient and —

The Court: But he now shows that he based it on something else that was incompetent.

BY MR. SIZER:

Q. Now, eliminating the history of this condition as you got it from the friends and relatives, can you or not still express an opinion as to what was the matter with him?

A. I can make a diagnosis of the man's condition on what I observed and what he told me himself, excluding any history from the friends or anybody else.

Q. Now, in doing that are you still —

General Cox: He does not say that he did that but he could do it.

Mr. Sizer: And I am going to ask him to do that.

BY MR. SIZER:

Q. Doing that, can you still express the same opinion that you expressed a while ago as to what was the matter with the man?

A. Yes, sir, the opinion is the same.

Mr. Sizer: That is all.

RECROSS-EXAMINATION,
BY MR. MILLER:

Q. Now, under what head do you include masturbation, an external or an internal cause?

The Court: That is immaterial.

Mr. Miller: I submit they made it material by their examination.

The Court: I do not see it that way. He said it was a cause and that is sufficient. This case is not going to depend on this man's testimony. You are taking a great deal of time about that original witness upon whose testimony this case will not turn entirely.

Mr. Miller: I understand that and I am trying to make as much progress as possible.

BY MR. MILLER:

Q. Now, I want to ask you this, Doctor: If I correctly understood you,you said this man's condition was due to internal causes; didn't you state that a while ago in your examination in chief?

A. Internal causes.

Q. And didn't you state it was due to external causes, didn't you state that?

A. I do not recall that I said that.

Q. I want to know now.

A. I do not recall that I made the statement. I can state now that I believe his condition was a congenital defect.

Q. That would mean a defect from his birth?

A. Yes, sir.

Q. That is what you believe his condition was due to?

A. Yes, sir; and not from any outside influence.

Q. You observed, then, that this man had rambling incoherent scattered ideas — a sort of confusion of ideas?

A. Of ideas and of things.

Q. Now, I want to ask you if those are not the very conditions that follow from overdoses of caffeine — if they are not laid down in all the medical authorities as being the things that follow from overdoses of caffeine.

A. I have never heard of caffeine causing a patient to have confusion of ideas and things.

Q. Have you ever read Cushny's book on the subject?

A. His ideas of things — he believed that people controlled his actions and that —

Q. I am not talking about that. I am talking about confusion of ideas and scattered thoughts. Do you mean to say that those are not the ordinary conditions that follow overdoses of caffeine or doses of caffeine? Can you give me an opinion on that point as a nerve specialist?

A. I am not an authority on the effects of caffeine.

Q. What are you an authority on? What is you specialty?

A. In dealing with the insane.

Q. You deal with nerve diseases in doing that?

A. Not so much nerve as mental. There is a distinction, I think.

Q. Mental — that means disordered brain?

A. Yes, sir.

Q. Does not a confusion of ideas result from a disordered brain?

A. Very often.

Q. Is it true that as a student of brain disorders and brain troubles you have not studied the effect of caffeine as administered by way of the mouth on the brain?

A. As I said before, I have not made a detailed study of the effects of caffeine on the brain. I have never done any work on that or studied it.

Q. Then you are not prepared to say what would be the effects of caffeine administered by way of the mouth on the brain?

A. I am not an expert on the chemistry of those drugs.

Q. It is not a question of chemistry, it is a question of physiological action on the subject after it is administered and I want to know whether or not you know the effect of the administration of caffeine to a man who takes it — on his brain?

A. Yes, sir.

Q. What is it?

A. Caffeine is supposed to stimulate the brain.

Q. Is it not laid down in Cushny's and other writers that the taking of caffeine may result in confusion of ideas and a disordered brain?

A. I don't know what your particular author says about it.

Q. Do or not the medical authorities teach that?

A. I only know that caffeine is an excitant.

Q. It excites the brain beyond the normal?

A. It stimulates the brain.

Q. When it excites the brain it puts it in a condition that is abnormal, does it not?

A. It might not be abnormal. Stimulation could be present without considering it as abnormal.

Q. But in the normal man or person where it is administered and acts as an excitant, would not that be an abnormal condition or an abnormal symptom?

A. I could not say it would be an abnormal thing.

Q. And yet it would be an excitant and excite the brain?

A. Cerebral excitement, yes.

Q. You didn't come here, as I understand you, as a scientific expert at all in the matter of brain disorders?

A. Well, I don't know; I am specializing entirely on brain diseases.

Q. Have you given the best answer you can and the fullest answer you can as to the effect of caffeine on the brain, and that is that it is merely an excitant?

A. As I have stated before, I have made no special study of the effect of caffeine on the brain.

Q. Therefore you are not prepared to give an expert opinion on that point?

A. I do not know what an overdose of caffeine would produce on the brain. I have never done any experimental work.

Q. So you are not prepared to speak in that respect. All right.

(Witness excused.)

DR. VICTOR C. VAUGHAN,

the next witness called on behalf of the Intervenor and Claimant, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER.

Q. Where do you reside and what is your calling?

A. I live in Ann Arbor, Michigan, and I am a physician and teacher.

Q. With what institution of learning are you connected?

A. I am connected with the University of Michigan.

Q. In what capacity?

A. I am Dean of the Medical Department, and I teach

the medical students physiological chemistry and hygiene, and I lecture to the law and medical students on medical judisprudence.

Q. Will you please state your medical education, training and experience?

A. I first graduated at a school in Missouri, Mount Pleasant College, Huntsville, Missouri. There I got my Bachelor's Degree. I took the Master's Degree and the Degree of Doctor of Philosophy in the University of Michigan; also the Degree of Doctor of Medicine. I have studied since then short courses in Berlin and in Paris, especially Berlin. I have been a teacher in the University of Michigan since 1876.

Q. What degrees have been conferred on you in your profession?

A. I have the Bachelor's Degree and the Master's Degree, Doctor of Philosophy, Doctor of Medicine. I have an Honorary Degree of Doctor of Medicine from the University of Illinois, Honorary Degree of Doctor of Science from the University of Pittsburgh, Honorary Degree Ll. D. from the University of Michigan and Central College, Missouri.

Q. With what medical societies or associations are you connected?

A. I am a member of the local society, at one time president; member of the State society, at one time president; member of the National society, at one time president of the section on Practice of Medicine; and at one time president of the section on Pathology; member of the Association of American Physicians, the New York Academy of Music, the French Society on Hygiene, the Hungarian Society on Hygiene, and possibly some others which I have forgotten.

Q. Are you in any way connected in a professional capacity with the National Government?

A. I am on the Advisory Board of Public Health. That Board consists of one man from the Army, one man from the Navy, medical departments, and five civilians; I am one of these five civilians.

Q. Did you render any service in the Spanish-American War?

A. I went to Cuba as surgeon of the 33d Michigan. Soon after reaching Cuba I was made Division Surgeon and I continued in active service in the United States Army from June, 1898, to the end of June, 1899. Some years later, by special Act of Congress, I was appointed special adviser to finish the report which we had made upon typhoid fever. I continued in that work for two years,

drawing the pay of a major in the Army. I am now an officer in the reserve corps of the United States Army. I have been twice called to temporary duty as a member of the reserve force.

Q. When was that and where?

A. First in 1909 I was called before the Board to discuss whether soldiers should be vaccinated against typhoid fever. Last June I was detailed to give a lecture to the medical students in the Army — the medical school of the Army.

Q. Are you the author of any medical works or treatises? If so, state them.

A. I wrote a book on physiological chemistry many years ago which passed through three editions and has been out of print for many years. With Doctor Novy I am the author of world "Ptomaines and Leucomaines," the last edition called "Cellular Toxins." This passed through four editions and is now out of print. Besides this I have contributed numerous articles to American and European journals.

Q. Have you made any special study or investigation of foods?

A. I have been studying foods all my professional life. I lecture on foods and have carried on investigations in foods; as a surgeon in the Army I had to look after the health of the men, and as responsible for feeding patients in the hospitals I had to look after the food.

Q. Do you know the substance caffeine?

A. I know the substance caffeine, which is the active ingredient of coffee and tea and certain other beverages.

Q. What kind of a substance is it scientifically?

A. Caffeine is an alkaloidal substance and it is found in plants. It belongs to the xanthine group of bodies.

Q. What kind of a xanthine is it?

A. A trimethylxanthine. That is, it is xanthine with three methyl groups introduced into it.

Q. In what beverages does caffeine appear?

A. Caffeine is found in tea and in coffee, in chocolate, in Matte and in Paragua. It is found in Guarana, and in small quantity in certain plants in this country of the Ilex family.

Q. Are any caffeine containing substances included in the rations of the Army and Navy of the National Government?

Mr. Miller: I submit that is incompetent.

The Court: The exception is overruled.

A. Coffee is used to my own knowledge as a ration in the United States Army, and to my general knowledge and

to a certain extent by observation, in the armies of the other nations of the world. Caffeine is part of the daily ration of every soldier.

BY MR. SIZER:

Q. Is it or not used in the National hospitals and public institutions of other kinds?

A. I know of no hospital in the world from which caffeine is excluded.

Q. You speak of chocolate as containing caffeine. Do you know what proportion of caffeine is found in chocolate?

A. In the best coca nibs the amount of caffeine I think varies from about five-tenths of one per cent. to seven-tenths of one per cent. Of course, when chocolate is made it should be reduced about one-half.

Q. You said the amount of chocolate, you mean the amount of caffeine?

A. Yes; pardon me.

Q. Are you connected officially with any hospital?

A. Yes, sir. There is a large hospital under my direct control; as Dean of the Medical Department it is my duty to inspect that hospital and I do so nearly every day when I am at home, once a week at least, and I give especial attention to the foods served, and there are between four and five hundred people, sick and well, served in that hospital every day.

Q. Is that located in Ann Arbor?

A. Yes, sir.

Q. Are coffee and tea used as regular articles of diet by that institution?

A. Yes, sir; we buy coffee by the thousand pounds at a time.

Q. Is coffee related chemically or physiologically to any normal constituent of the human body, and if so, just go on and state.

A. One of the normal constituents of the human body is xanthine. Xanthine is found in practically all plants and animals. It is found most abundantly in young plants and animals. It is a constituent of the cell — every growing, living cell in a plant or animal, and when those nucleus substances of the cell break up, more or less xanthine is set free. Caffeine is a trimethylxanthine, and when taken into the body it is stripped of its methyl accompaniments and reduced to dimethyl and monomethyl and sometimes probably to xanthine itself.

Q. Is coffee a substance that could be classed as a poison within the ordinary meaning of that term?

Mr. Miller: I object to that as an improper limitation.

The Court: He may be asked whether that is a poison and he can give his own definition. He can testify as an expert on the scientific use, or on his own meaning.

Mr. Miller: This witness has not yet qualified as a toxicologist.

BY MR. SIZER:

Q. Have you had any experience or training or learning as a toxicologist?

A. I teach toxicology and medical jurisprudence to the medical and law students. I am presumed to know something about the subjects I teach, and I have done a great deal of toxicology work.

Q. I will ask you if caffeine is a poison and in answering give your definition of the term "poison."

A. Whether caffeine is a poison or not depends —

Mr. Miller: (Interrupting.) At that point we want to interpose an objection on the ground that this question is one for the Court primarily, and secondly, for the jury.

The Court: That may be, but when there is so much difference about that, we will hear him. I will instruct the jury as to what the meaning of the word "poison" in the Act is, but I will allow each witness to state what he means by poison, so that we may understand his testimony.

Mr. Miller: Note an exception.

The Court: Gentlemen of the jury, in giving his opinion that is not evidence of the meaning of the word "poison" but it is just what he means when he says a poison so that you can weigh his testimony.

Mr. Miller: That may depend on whether you take it or not.

A. It depends on the amount given and the avenue of administration, how it is given. A poison is a substance, as we understand it, which, when taken into the body on account of its chemical constitution, seriously impairs or destroys the function of some part of the body. It may kill or simply impair.

BY MR. SIZER:

Q. Now, in that connection, have you ever known or heard of an authenticated case of death resulting from the use of caffeine in any quantity?

A. I never have, and I think I can say that there is not on record any authenticated case of fatal poisoning with caffeine.

Q. I will ask you if you have examined the Allard case and the Zenetz case, referred to by witnesses on behalf of the Government in the trial of this case, and if so, state what you learned about those cases from reading them,

taking up first the Allard case.

Mr. Miller: I submit the Allard case is here and it can be put in evidence. I do not want his conclusions from reading it. It has been referred to and brought out by counsel on the other side, and I did not bring it out. If they have the cases here, let them put them in evidence.

Mr. Sizer: They put the cases in evidence and we desire this witness to explain as an expert on the reports of those cases. They have been referred to by the Government witnsses as cases of caffeine poisoning with death resulting.

Mr. Miller: My point is I did not call it out. I did not call out those cases; they were all called out by adversary counsel. Now, having called them out, if they choose to explain them, they must not ask the witness but put them in evidence.

The Court: The substance of the cases were read by your witness. One witness was asked to produce a list of the cases and he produced them.

Mr. Miller: Simply gave the citations.

The Court: Practically read them. Now, without reading them, this witness may state what his opinion is as to what the report shows, as to whether it was caffeine poisoning. If counsel for the Government desires the full report, it can be considered in evidence subject to the right of either side to read or refer to them.

Mr. Miller: That is what we want to get, the cases.

The Court: You may file them on either side and you can use them if you desire.

BY MR. SIZER:

Q. Have you read the original report of the Allard cases?

A. I have.

Q. Does that report say that the death was the result of caffeine?

A. The report in the Allard case, every word of which I have read in the original, shows that it has absolutely nothing to do with it. It is headed: "Cases of Theocine Poisoning." Theocine is not caffeine. Theocine is an artificial dimethylxanthine, artifically made. It does not come from caffeine. It is artificially made and in one of the cases reported by that report, caffeine was given as an antidote to save the man after he had been poisoned with theocine. So that that disposes of the Allard case. There is no claim on the part of the writer of that article that it is a case of caffeine or caffeine poisoning; on the contrary, caffeine was given as an antidote for the effects of theocine.

Q. Now, about the Zenetz case. Have you read that

report?

A. I read the orinignal of the Zenetz case. The title of that case shows what it means. The use or the employment of caffeine in diseases of the heart and kidneys. It is true the article is somewhat loosely written and may be interpreted in several ways. The author states that the woman was gesund in health. Later on he says she was not entirely well, and then when she died he says that it was difficult to cut the heart with a knife. Caffeine nor any other acute poison can produce any such condition of the heart. Such a condition of the heart could be the result only of disease. It must have been a fibrous or calcareous degeneration in the heart; besides, the title of the article is: "The used of caffeine in diseases of the heart and kidneys," and the author simply claims it is dangerous to use medicinal doses or large doses of caffeine when people have diseases of the heart or kidneys.

Q. Now, when taken in the form of beverages in moderate quantities, are the effects of caffeine beneficial or injurious to the human system?

A. The effect of caffeine in moderate doses is certainly beneficial. The whole history of the world shows that to be the case.

Q. In what way beneficially — how does it act?

A. Caffeine slightly stimulates — I mean, when it is taken as a beverage. It slightly stimulates the nervous system. It makes the muscles work more smoothly and easily, and more effectively. It has, though probably not in ordinary doses, some slight action on the kidneys. Caffeine is no more poisonous than xanthine, which is a normal constituent of the human body. It is a question as to whether it is as poisonous or not.

Q. Do you know that caffeine-containing beverages are used not only in this country but in other countries, extensively?

A. The whole civilized world uses caffeine-containing beverages, and they have been using them in Europe and this country three or four hundred years, and in Asia we do not know how long.

Q. In addition to the civilized world, are they not used by the uncivilized world to some extent?

Mr. Miller: How does he know anything about the uncivilized world?

A. To some extent.

BY MR. SIZER:

Q. You have spoken a time or two of the use of chocolate as a beverage. Does chocolate contain any other

alkaloid besides caffeine?

A. Yes, sir, theobromine.

Q. How is theobromine related to caffeine with respect to its constitution and effect?

A. Theobromine is a dimethylxanthine, rather closely related to caffeine. Some of the caffeine is changed into theobromine in the body. Theobromine is in some respects a little more active than caffeine, and in others not quite so active, depending on the effects we have involved.

Q. In coffee taken as a bexerage what other substances are present besides caffeine?

A. Coffee taken as a beverage has some tannic acid and a small amount of volatile oil, possibly a mixture of volatile oils which cause aroma or flavor.

Q. What is that volatile oil called?

A. Caffeol.

Q. Does that contain a certain amount of alcohol?

A. It consists of furfurol alcohol.

Q. That is developed in the roasting of the coffee?

A. Yes, sir; m[illegible]tly.

Q. What is th[illegible]ysiological effect of caffeol?

A. It is slightly stimulant.

Q. Somewhat the same effect as caffeine?

A. Somewhat.

Mr. Miller: I object to that; that is suggestive and this witness is very learned.

The Witness: I make no such claim; to be very learned.

Mr. Miller: Adversary counsel do and I concede it. You are too modest to.

Mr. Sizer: He stated that caffeine was stimulant and caffeol was stimulant, and I ask him if they were similar in physiological effect.

A. I don't think we know a great deal about the psysiological effect of caffeol, but it is generally assumed that it is slightly stimulant.

BY MR. SIZER:

Q. Now, you say that the effect of caffeine is stimulating. Is stimulation injurious to the human system in a moderate amount?

A. It depends upon the extent to which the stimulation is carried. Stimulation in a moderate amount certainly is not injurious but is beneficial; we could not live without a certain amount of stimulation.

Q. Have you ever seen this Coca-Cola syrup?

A. I have seen it.

Q. Analyze it?

A. I made a determination of the caffeine in it.

Q. What was the proportion of caffeine you found?

A. 22/100ths of 1 per cent.

Q. Suppose that syrup is taken in the form of a beverage in the proportion of one ounce of the syrup to six or seven ounces of carbonated water, would five or six glasses of the beverage of that kind in the course of a day produce injurious effects or not?

A. I think not. In my opinion it would not.

Mr. Miller: I move to exclude that question and answer because that is a conclusion. He may state the effect it would have on the consumer, but whether or not it was injurious is a question to be presented to the consideration of the jury.

The Court: I am not inclined to think so. The exception is overruled. It may involve a mixed conclusion but I think this is the shorter way to get at the results.

BY MR. SIZER:

Q. Would it produce any abnormal stimulation in your opinion?

A. In my opinion it would not.

Mr. Miller: I object to that. I submit the simpler and better way would be to ask him if it would produce any symptoms, and if so, what.

BY MR. SIZER:

Q. Would it produce any symptoms, and if so, what?

A. I have no doubt it would be stimulating to the brain and muscles, and to some extent possibly the kidneys, slightly.

Q. Would that be an abnormal or injurious symptom?

A. In my opinion in that amount it would be normal stimulation.

Q. Have you conducted any experiments on animals with caffeine?

A. I have.

Q. Just state what experiments and what the animals were that you used.

A. I used guineapigs, in my experiments with caffeine and from the 2d day of February, 1910, until the 16th of May, inclusive, I gave one set of guinea pigs 1/30th of a grain of caffeine by mouth per day. That experiment continued throughout 104 days.

Another set of guinea pigs I administered 1/15th of a grain of caffeine by the mouth every day from March 26th to May 16th, inclusive, about 52 days, I think.

These were the experiments.

Q. Did you have a set of control pigs in each experiment?

A. I had control pigs and to these control pigs every day, every time a dose of caffeine was given, an equal amount of water was given to the control pigs.

Q. With the exception of the caffeine given to the pigs you were conducting the experiments on, were the control pigs and the others fed the same?

A. Exactly.

Q. How did you feed that caffeine to the pigs?

A. Dropped it into the mouth.

Q. What would be the effect on the digestive apparatus of an animal, on his general physiological condition, of feeding a substance through a rubber tube?

A. Feeding the lower animals with food through a rubber tube should be avoided so far as possible, because some of the ordinary foods when fed to animals through a tube are absorbed undigested and may seriously affect the health and may even kill the animal apart from any injury done by the tubes.

Q. What would be the amount of caffeine given, per dose, to a man weighing 150 pounds in order to give him the same proportional amount that you gave to these guineapigs per day?

A. Per unit of weight, — the first set of guineapigs — take a man weighing 150 pounds and to give him the same relative dose it would be about six grains. These guineapigs weighed on an average a little less than a pound. To the second set it would amount to about nine grains, or a little less; these pigs averaged a little more than a pound.

The Court: I think I was in error in my last ruling. I think when the Government witnesses were on the stand I did not allow them to state that the effects of caffeine would be injurious, but I let them state the effects and left it to the jury to determine whether it was injurious, and I want to adhere to that former ruling.

Mr. Sizer: Well, I have asked him what the effects were and they have been described.

Thereupon Court adjourned at 2 o'clock P. M. until Friday, March 24, 1911, at 9 o'clock A. M.

Chattanooga, Tennessee,
Friday, March 24, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances; same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED:

VICTOR C. VAUGHN

resumed the stand for further

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You were testifying on yesterday about some experiments you made with guinea pigs. I believe you say you conducted two series of experiments with guinea pigs.

A. Two series.

Q. One of those sets of guinea pigs you fed a quantity of caffeine equivalent of five or six grains a day to a man of 150 pounds?

A. Yes, sir; counting per pound.

Q. And the amount fed the other was equivalent to how much?

A. A little less than nine grains.

Q. Why did you use two sets?

A. I gave one set bigger doses.

Q. And with each set of caffeine-fed pigs, you carried along a control set of animals not fed caffeine?

A. I had a control set for the two.

Q. How long did you continue those experiments — over what period?

A. The first set of pigs, the longest set, had caffeine from the 2nd of February until the 16th of March — 16 of May inclusive. That was, I think, 104 days; and the second set with the bigger dose were from March 26th to May 16th inclusive, 52 days.

Q. Why did you carry that set of control animals — what was the purpose of that?

A. The control animals were carried for 104 days.

Q. But why did you have control animals?

A. Because it is always better to have animals living under the same conditions under which the others live, and handled in the same way, so as to see whether it is the substance you are giving them that affects them.

Q. Is that necessary in order to make the experiment of value?

A. It is necessary.

Q. Did you observe any effects whatever in the guinea pigs fed with caffeine that were not in the control pigs?

A. I saw no ill effect from the caffeine. Two caffeine-fed animals died during the course of the feeding and one of the controls, but the post mortem examination showed that all three died from an infectious disease prevalent among the guinea pigs in the laboratory at that time.

Q. Was any autopsy performed on the caffeine-fed pigs after they were dead?

A. On the 17th of May, Dr. Hektoon came to Ann Arbor and made a post mortem on the pigs, both the caffeine-fed pigs and the control pigs as well.

Q. What Dr. Hektoon is that?
A. Dr. Ludwig Hektoon.
Q. Of what city?
A. Of the University of Chicago — Rush Medical College of Chicago.
Q. Where was that autopsy performed?
A. The laboratory at Ann Arbor.
Q. Did you examine the remains with Dr. Hektoon?
A. I looked on while he was making the post mortem examination.
Q. Did you observe the condition and characteristics of the carcases?
A. I observed them grossly, not miscroscopically.
Q. By grossly you mean with the naked eye?
A. Yes, sir.
Q. Were there any changes that you observed in the caffeine-fed pigs?
A. No, sir; the caffeine-fed pigs in the longest set increased a little more in weight than the controls, but I did not put any stress on that. The increase was not great.
Q. Do you know whether those carcases were taken away by Dr. Hektoon for any purpose?
A. The pigs were examined and they were taken away —their organs were at least.
Q. By Dr. Hektoon?
A. By Dr. Hektoon.
Q. Are guinea pigs susceptible to caffeine?
A. Guinea pigs are susceptible to caffeine.
Q. Can one who is accustomed to the habitual use of caffeine take larger quantities of it without producing any appreciable effects than people who are not accustomed to it?
A. I think that is a common experience of most of us after we get used to drinking coffee, that we can drink more.
Q. The system acquires a sort of tolerance for it?
A. Yes, sir.
Q. Are guinea pigs accustomed to the use of caffeine as a part of their natural diet?
A. No, sir; guinea pigs do not have much or any xanthine substance in their ordinary diet. Possibly they get a little now and then.
Q. Is that true of rabbits?
A. That is true of rabbits.
Q. You say they get a little now and then of caffeine?
A. Xanthine-yielding bodies.
Q. Not caffeine?
A. No, sir; not caffeine.

Q. Suppose that extensive quantities of caffeine should be taken by any person, what would be the nature of the effect produced, would they be temporary or permanent or what?

A. I suppose this would be governed, or controlled, by the amount. Of course, excessive quantities may be quite indefinite. I have never known a case that was permanently ill-effected from any excessive quantity of caffeine, as far as my observation goes, at least.

Q. What kind of an effect would an excessive quantity of caffeine produce?

A. It would lead to nervousness, possibly some nervous irritability and sleeplessness, and rapid action of the heart.

Q. About how long would it take those effects to pass away?

A. I think usually they pass away withintwenty-four hours.

Q. You had these guinea pigs numbered that you fed the caffeine to?

A. Yes, sir.

Q. Those numbers were given to Dr. Hektoon?

A. Those numbers were given to Dr. Hektoon.

Q. Were pigs 13 and 14 caffeine-fed or not?

A. I have not my numbers here. Shall I get them?

Q. Are they in Chattanooga?

A. Yes, sir.

Q. I will ask you to get those numbers and answer that a little later on.

A. Very well.

Q. When you turned those pigs over to Dr. Hektoon after they were killed, did he know which numbers represented the caffeine-fed pigs?

A. No, sir; he does not know today.

Q. Is caffeine a habit-forming drug?

A. That depends altogether on the use of the word habit. Of course, we get in the habit of doing this or that thing, or taking this or that.

Q. In what sense is caffeine a habit-forming drug or non-habit-forming — in what form could it be called a habit-forming drug, and in what sense is it not a habit-forming drug?

A. A habit-forming substance in the sense that we get in the habit of taking certain foods at a certain time. It is not a habit-forming drug in the sense that we use that as applied to morphine or cocaine or chloral and other drugs of that class.

Q. It is a habit-forming drug in the sense that a per-

son who becomes accustomed to the use of it, requires constantly increasing quantities?

A. It is not a habit-forming drug in that sense; certainly not with the majority of people and I do not think with anybody.

Q. On the other hand, is it true that a person who acquires the cocaine or opium habit does require constantly increasing quantities in order to produce the effects sought?

A. He does, and he finds it difficult to leave it off of his own accord.

Q. Is there any depression that follows the taking of caffeine in beverages in moderate quantities?

A. So far as I know personally, or from observation, there is no depression following the taking of caffeine as a beverage in ordinary doses.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You have not made any study of Coca-Cola except as to the one content, and that is caffeine?

A. That is the only thing I have studied.

Q. You have not observed the habits of persons who are accustomed to taking Coca-Cola?

A. I have observed, no doubt, persons accustomed to taking Coca-Cola.

Q. What I mean is, you have not observed the people who take it — you have not studied those people to see whether it is a habit-forming drug with them or not?

A. I have made no special study of people who took Coca-Cola.

Q. Not study, but observation — have you made any observations in that respect?

A. I suppose I see people who take Coca-Cola, but I never made any study and I don't know anybody who takes Coca-Cola.

Q. If you don't know anybody who takes Coca-Cola— I am not asking you for supposition, but just what you know.

A. I know nothing about the taking of Coca-Cola.

Q. Referring to the introduction of coffee, or its use as a beverage, you do not mean to be understood that that has been used by the civilized countries for three or four hundred years?

A. Did you say twenty-four hundred years?

Q. Three or four hundred years.

A. Coffee was introduced in Turkey — I am giving about the time — about 1500.

Q. That was in Turkey but it was introduced in France about 1820, was it not?

A. Oh, no; about 1600 and something.

Q. Can you produce an authority for that?

A. I think I can.

Q. I would be glad to have you do that when you introduce the other matter that Mr. Sizer asked you to procure.

A. Very well.

Mr. Sizer: Do you want us to introduce that now?

Mr. Miller: You can introduce the Botanica.

Mr. Sizer: We have Hutchison —

Mr. Miller: So have we, and we also have the Botanica. I think the Botanica gives it.

BY MR. MILLER:

Q. Now, at the time of the Revolutionary War in this country, do you mean to say that coffee was in general use in the United States?

A. There were no United States at that time.

Q. I mean on this continent where the United States of America is now — what is now the territory of the United States, was there any coffee in general use here?

A. It was in the cities, at least; I do not know about the country places. It was in New York.

Q. It was in general use in New York City?

A. Yes, sir.

Q. You state that as a part of your general historical knowledge?

A. Yes, sir, I do.

Q. Is caffeine used as a medicine?

A. It is.

Q. Is it related to xanthine?

A. It is xanthine. It is trimethylxanthine.

Q. What are the names of those trimethyls that form caffeine?

A. The names of them?

Q. Yes, there are three; you say it is a trimethyl-xanthine?

A. The methylxanthine are named according to the position which the methyl group takes.

Q. Xanthine proper may be divided into three distinct things.

A. Oh; monomethyl, dimethyl and trimethyl compounds.

Q. Now, one of those is theophyllin?

A. One of those is theophyllin.

Q. Another is theobromine?

A. Yes, sir.

Q. What is the third one?

A. Paraxanthine is a dimethyl and caffeine is xan-

Q. Caffeine is made up of those three, — that is, you get those three from caffeine?

A. Those three?

Q. I mean, from xanthine.

A. Caffeine is a trimethylxanthine; that is, there are three methyl groups in caffeine, and in theophyllin there are two, and in theobromine there are two, and in paraxanthine there are two, and then there are monomethylxanthines.

Q. But all of those enter into caffeine?

A. I don't think that would be a fair statement, no.

Q. Aren't they all obtained from caffeine?

A. They may be obtained from caffeine but I would not say they all entered into caffeine, and I do not think that would be a fair statement.

Q. If you divide xanthines you get all those from it?

A. How is that?

Q. If you divide or dissect caffeine, I mean, you would get all of those from it?

A. Certainly; it may be split up to furnish one or the other or two or more at least.

Q. Now, assuming that caffeine is at the bottom of this tree. (Exhibiting a diagram) You say it is composed of three constituents and you get from it paraxanthine, theobromine and theophyllin.

A. You may get all those from it.

Q. And when you stated yesterday that theobromine was allied or related to caffeine, you mean as indicated by this exhibit that is put before you?

A. Chemically related to it.

Q. It is chemically related to it as shown in that diagram?

A. Yes, sir.

Q. I ask you to file this as exhibit No. one, if you think that is a fair representation of caffeine.

A. I think it is.

Q. I will ask you to file that as Exhibit No. 1 with your testimony.

The Court: That may be done.

(Said exhibit is as follows:)

Q. What is theophyllin as compared with theocin?

A. Theocin is an artificial product.

Q. But I ask what it is as compared with theophyllin.

A. They are both dimethyl compounds.

Q. Are they the same in composition?

A. They are chemically, but whether they are in action or not I do not know.

Q. They are chemically then the same?

A. Yes, supposed to be; I never examined theocin or theophyllin, either, generally. I am only giving that from my general knowledge of the subject. I made no examination.

Q. You are acquainted with Kobert's Textbook on Intoxications?

A. I have seen the book.

Q. Don't you know that he is a recognized authority?

A. Yes, sir; he is a recognized authority, but there may be and probably are many things wrong in his book.

Q. Let me read this from page 1035 of his book:

(Reading:) "Theophyllin, which was discovered in 1888, by A. Kossel in the extract of tea leaves, is one-third" ——

A. No, one to three.

Q. Yes. (Reading:) "one to three dimethylxanthine; a preparation which is identical with it has been repeatedly prepared synthetically."

By that is meant manufactured instead of getting it naturally?

A. Yes, sir.

Q. (Reading:)

"Such a one is theocin."

A. I dare say that is chemically so, but whether theocin and theophyllin are physiologically alike I do not know.

Q. (Reading:)

"Since the plant product is only difficultly obtainable, it has no medicinal importance."

A. That is wrong. Theophyllin obtained from plants is used medicinally.

Q. He does not say that but he says it is obtained with difficulty.

A. It is obtained with difficulty.

Q. Then you agree with that statement?

A. Yes, sir; but it is used.

Q. (Reading:)

"While the artificially prepared theophyllin and its double salts, such as theophyllin sodium, theophyllin sodium acetate, and theophyllin sodium salicylate have frequently been used in cases of dropsy."

A. I dare say that is true; I can't deny it.

Q. As a toxicologist you would think that excerpt that I have read is true so far as you know?

A. So far as I know, it is; but I have no personal knowledge.

Q. Now, taking theophyllin as being identical with theocin chemically, I will ask you if that Allard case which you expatiated on yesterday — the one or two cases as reported by Allard — were not cases of theocin poisoning.

A. They were so reported.

Q. You had the official reports?

A. I had the original reports. There was nothing official about them.

Q. Then they were cases that were due to poisoning from this substance which was chemically identical with theophyllin?

A. Supposed to be but I would have to have an individual sample and submit it to analysis to know that it was the same.

Q. But in so far as you know anything about it at all from the reading of the cases, they were cases practically of theophyllin poisoning?

A. Cases of theocin poisoning.

Q. You say you do not know any difference between theocin and theophyllin?

A. I do not know that they are chemically different. Physiologically they may be different but I do not know.

Q. If there is any physiological difference you do not know it?

A. I have no personal knowledge on that subject. I know that theocin is not caffeine.

Q. But if I understand you, you state that if it has any physiological difference from theophyllin you do not know what it is?

A. I do not know what it is but it may have.

Q. But chemically they are alike?

A. Chemically they are supposed to be, but whether the preparations are alike or not I do not know.

The Court: That has been brought out heretofore and is perfectly clear.

BY MR. MILLER:

Q. Now, take one or the other branches of caffeine, springing from that tree, namely, paraxanthine, and I ask you if in your own treatise on leucomaines and cellular toxins, you do not record that as poisonous yourself?

A. There is no doubt about the poisonous action of paraxanthine. That is, from the literature. I never made any experiments with it.

Q. Look at your own book on page 481 and in treating of xanthine, don't you put it down under the head of a poison and give its nature as being poisonous?

A. There is no question but what the literature ranks paraxanthine as a poison. I never made any exper-

iments.

Q. You admit it appears in that book?

A. Oh, yes; there are many things in that book I do not know anything about.

Q. You wrote a book and sent it out to the world on poisons that you do not know anything about?

A. Yes, sir; a great many things I don't know anything about. What I don't know about the xanthine bases would make a big volume.

Q. Now, when you state that the effect of caffeine is beneficial and undertake to reason from that that it is because it is related to the xanthine group or bases, you admit now in your testimony that there are a good many things about that xanthine that you don't know anything about?

A. A great many things.

Q. And you at least admit that part of them are poisons?

A. Yes, sir; in large quantities.

Q. Now, when you stated that xanthine was a normal constituent of the body, did you know about that or not?

A. Yes, sir; I know about that personally.

Q. Now, what is your proof on that point?

A. Xanthine is found in the normal urine.

Q. Well, do you mean to say that urine is a normal constituent of the body?

A. It comes from the body and health.

Q. I understand, a great many things are excreted from the body that you would not call normal constituents of the body.

A. Urine comes from the body in health and at one time a normal constituent of the body.

Q. Well, food goes into the body and is excreted?

A. Yes, sir.

Q. And because you eat bread, that don't mean that you call bread a normal constituent of the body?

A. Oh, no, no.

Q. That don't mean that this fecal matter that is excreted is called a normal constituent of the body?

A. No.

Q. That is simply a waste product, this xanthine product, or uric acid that comes from the body; that is simply a waste product the body throws away?

A. If it formed in the body.

Q. By reason of degeneration or the breaking down of the cells?

A. Yes, sir; that is the way urine is formed in the body.

Q. Urea is a normal constituent of the body?

A. But I am talking about urine.

Q. Yes, you don't call it anything until it is gathered together and eliminated?

A. You don't call it urine until the breaking down of the cell takes place and oxidation takes place and it is ready to be delivered or emitted from the body.

Q. Well you call it uric acid?

A. Call it uric acid?

Q. I mean urine.

A. After it is all collected and eliminated through the kidneys, it is called urine.

Q. And before that time, you have uric acid?

A. Yes sir.

Q. And it produces uremic poisoning if the body does not get rid of it?

A. I didn't know before that uric acid produced uremia.

Q. Do you say it does not?

A. I don't think so.

Q. If the body does not relieve itself of it, what follows?

A. It may form stones.

Q. Stones?

A. Yes, sir; it may form stones—form concretions—gout.

Q. Uric acid produces gout and rheumatism?

A. It is a question about rheumatism, in some forms gout is produced by accumulation of uric acid in the body.

Q. So that when the cell degeneration takes place and the matter that is accumulated in the degeneration process, and that is combined with something else, you you form uric acid?

A. Yes, sir; when the xanthine body in the nuclei of cells are formed, that is by breaking down of the nuclei cells and the xanthine is oxydized, why some uric acid is formed.

Q. And that uric acid is discharged?

A. Yes sir.

Q. And that is what you have termed in your book as a waste product?

A. Yes, sir; it certainly is.

Q. And as respects caffeol, you don't pretend to say what its composition is?

A. No, sir; I do not.

Q. Or what its physiological effect is?

A. No, sir; I have made no experiments with caffeol at all.

Q. In your work on Cellular Toxins, you state this: (Reading.)

"Xanthine causes muscular rigor and general paralysis, but not increased irritability."

A. I think so, if you read it correctly, that statement is in the book.

Q. Do you mean or not that is a correct statement that I have read you?

A. How?

Q. Do you mean to state whether or not that is a correct statement?

A. Yes sir, that is a correct statement so far as I know. I know that it does produce convulsions in animals as I have tried it.

Q. If it produces it in animals, you mean men of course?

A. No, sir; I mean guinea pigs.

Q. In guinea pigs?

A. Yes, sir.

Q. Have you any reason for believing that it produces it in guinea pigs and not in men?

A. I suppose if given in the same doses, it would have the same effect but that is a supposition.

Q. You didn't experiment with man because it is preferable to experiment on animals?

A. Yes, sir.

Q. The animal experimentation is regarded as a standard method of experimentation, as a rule is it not?

A. Yes, sir.

Q. This book that you wrote was written for a man and not for guinea pigs, wasn't it?

A. Most of these experiments were made on the lower animals. Some of these experiments with xanthine bodies were made on man.

Q. I know, but I am asking you if this was not intended to be a treatise for treating human diseases?

A. That was a treatise on the chemistry of the animal body.

Q. Was not the book, the object of writing it, to enlighten the world, and particularly the medical profession, as respecting certain drugs, the effects of certain drugs on humanity?

A. Yes, sir; Assuming that we have similar effects on man as on lower animals.

Q. Now, how many of these guinea pigs were there that were fed caffeine?

A. There were six in each set, two of the first set died, as I stated, but none of the second set died; one

of the controls died.

Q. How did you administer the caffeine, through the mouth or was it baked and given to the pigs in some sort of food or how?

A. No, it was in solution and dropped into the mouth of the guinea pig.

Q. How did you manage to control the pigs long enough to drop it into the mouth?

A. Very easily done sir, simply take the little guinea pig in your left hand and hold him up by your side and with your thumb and finger open his mouth and with a tube drop the fluid into the throat and then by a simple preasure on the jaw, he swallows it.

Q. You have to take him up in your hand and pry his mouth open and put a tube in it?

A. No, sir; not a tube, the tube does not touch his mouth, it is over his throat.

Q. What kind of a tube was that?

A. A medicine dropper.

Q. And you dropped that into his mouth?

A. Yes sir.

Q. And then you had to make him swallow?

A. It is simply just a little pressure—he swallows it.

Q. Who assisted you in conducting these experiments Doctor?

A. An assistant of mine, Mrs. Worcester.

Q. Mrs. Worcester?

A. Yes, sir.

Q. What part of the work did she do?

A. She administered the caffeine.

Q. And where was it administered, where were the pigs kept?

A. In my own work-room.

Q. And who prepared the caffeine solvent which you gave to Mrs. Worcester?

A. I don't know whether I dissolved it or not, but either she or I dissolved it, but I produced the caffeine.

Q. Where did you get the caffeine?

A. It was bought in Germany, either from Schubert or some other German firm.

Q. Who bought it?

A. We buy all of our chemicals in Germany, Mr. Miller, the University of Michigan buys its chemicals in Germany.

Q. You ordered this from Germany?

A. Yes, sir; it was in our stock.

Q. And it was taken from stock?

A. Yes sir.

Q. And you stated that you took it and made it up or that she did?

A. I don't remember which dissolved it, but I got the bottle.

Q. You got the bottle and if she made it up you don't know how she made it up?

A. Yes, sir; I do. She weighed it before me if she weighed it.

Q. Do you remember how that is?

A. No, sir; I am not sure whether I weighed it or she weighed it; it was done in my room and on my scales.

Q. You don't know in the first place whether you did or she did?

A. I am not positively sure which.

Q. You don't know as a matter of fact if it was actually weighed at all?

A. Yes, sir; I weighed it or saw it weighed.

Q. If you know that it was weighed, I want to know how you know it?

A. I can't tell you any more than I have told you, I either saw it weighed or weighed it myself.

Q. You don't know whether it was caffeine or not?

A. Yes, sir.

Q. What tests did you resort to?

A. I bought it first, that is it came in unbroken bottles from a reputable manufacturing house. It was tested repeatedly for caffeine by the meuraxic test.

Q. Who tested it?

A. I did.

Q. Do you state, Doctor that that is a sufficient test to determine whether or not it was not some other substance?

A. I suppose I have taken the melting point, but I did not, Mr. Miller.

Q. I am asking you Doctor as a scientist, I want to know whether that is a sufficient test to determine whether or not that was caffeine.

A. I think if I buy a thing from a reputable house and it comes in an unbroken package labeled caffeine and I take it out and test it by that test, I think that is proof that it is caffeine.

Q. That it is caffeine, that is your opinion?

A. Yes, sir.

Q. But, you see, I am asking you what was the proper test.

A. I think, under those circumstances, that was a sufficient test.

Q. But do you or not state that this meuraxic test that you referred to, was the proper test to determine whether or not the caffeine was present and the amount?

A. Under those conditions, certainly I regard it as such. If it had been from an unknown source, I should have to have gone further.

Q. In the first place, do you know it came from this reputable house, how do you know that?

A. Well, it came in an unbroken package.

Q. You don't know whether it was shipped from there?

A. I know all of our chemicals, we buy all of them, they come from that house, we get the bill and pay the bill.

Q. Well, you pay the bill.

A. Yes.

Q. You buy it direct or through someone else?

A. We buy it direct.

Q. And have it shipped over here?

A. Yes, sir; it comes in bond.

Q. Now, what would have been disclosed by this test you applied, what would have been the difference by this test you applied between caffeine and theobromine, for instance?

A. Why, they would both give the same test.

Q. And so far as you know this may have been theobromine?

A. Oh, that is a bare possibility, I suppose, not at all probable.

Q. You say it is not at all probable because you ordered it under the name of caffeine and you paid for it under the name of caffeine?

A. And it came under the name of caffeine and it gives the meuraxic test.

Q. You say that same meuraxic test—

The Court: He stated that.

Mr. Miller: I move to exclude the experimentation about those guinea pigs on the same theory this citric acid was excluded and for the same reason, here is caffeine which has three properties, and I have shown that two were poisonous—shown to be so, and one produced death and the other the doctor says, is poisonous, in fact he says it may be, the third—

The Court: (Interrupting) I understand the point. I overrule the exception. I think it is a question for the jury as to whether that test, under the circumstances for caffeine was sufficient or not. My own opinion about it, it is not necessary to express.

Mr. Miller: We note an exception.

BY MR. MILLER:

Q. Now, in addition to Mrs. Worcester, what other assistants did you have?

A. Why, I had no other assistants in these experiments except Mrs. Worcester.

Q. What proportion of the time, of the 104 days were you in Ann Arbor, and what proportion were you away, have you got any means of knowing?

A. Yes, sir; I have means of knowing.

Q. What are they?

A. I was absent during that time about ten days. I can't give you just the number of days, but I was absent, however, about ten days.

Q. What was the other food which these pigs were given?

A. What was the other food?

Q. Yes, besides this substance that was either theobromine or caffeine?

A. The food that the guinea pigs had was oats, carrots and hay ad libitum, that is all they wanted.

Q. Did you make any test to ascertain whether of not there was sugar in the urine?

A. I did not.

Q. Are you acquainted with a treatise or article by Dr. Carl Voight, Professor at the University of Munich?

Mr. Hirsch: I would like for you to produce that, and not read from an extract—

Mr. Miller: We simply asked him if he was acquainied with that.

BY MR. MILLER:

Q. The title being Investigations Concerning the Influence of the Common Salt of Coffee and of its action and of Metabolism?

A. I don't think I ever saw the article, I have no recollection of it.

Q. When you state that post mortem examinations were held to ascertain certain things, if I understand all you pretend to say with respect to these post mortems, Was what was disclosed by the natural eye?

A. That is all.

Q. And when you stated that the post mortems disclosed that two of these pigs died from some cause, is that something that you observed yourself with the naked eye?

A. I did.

Q. And what was it that you discovered by the use

of your natural eye that caused you to state that two of these pigs died from something else?

A. On opening the abdomen of these guinea pigs, it was found to be thoroughly inflamed and infected, and cultures were made from the surface, and the germ was obtained.

Q. That was what?

A. A germ.

Q. What kind?

A. A bacillus, I didn't determine what the nature of it was.

Q. Then in the case of the third pig, was there any culture made?

A. The same organism found in the third that died, the one control and the two caffeine pigs.

Q. When were these pigs killed, these guinea pigs?

A. On the 17th of May, 1910.

Q. And when were they turned over to Dr. Hektoon, for examination?

A. Just as soon as they were dead.

Q. He was at your place at that time?

A. Yes sir.

Q. At Ann Arbor?

A. Yes, sir.

Q. And how were there pigs killed?

A. With chloroform.

Q. If I understand you, you did'nt attach any importance one way or the other to the fact of the increase in weight in some of the pigs?

A. I did not attach any great importance to that.

Q. Why do you say that a tolerance is built up, and what do you mean by tolerance?

A. In that connection the exact evidence of caffeine taken continually or habitually—I meant to state that a person who has never taken any coffee or any caffeine-containing substance, would be stimulated more by a similar amount than a person who had been in the habit of taking it.

Q. Well, the fact is, that in delivering a class lecture to your class, or one of your classes, on hygiene or physiological chemistry about 1895, or 1896 or 1897, well, I will say about 1896 or 1897, at Ann Arbor, in commenting on the effects of caffeine, you related this circumstance in your own life, that you were traveling abroad and took a cup of coffee one evening.

A. (Interrupting) A pot of coffee.

Q. A pot of coffee?

A. Yes, sir.

Q. You are acquainted with the circumstances?

A. Yes, sir.

Q. And your deposition was taken in this case at Ann Arbor?

A. Yes, sir; it was.

Q. And after it was taken, certain supplemental interrogatories were submitted to you on this identical point?

A. Yes, sir.

Q. And you have reflected over that since that time, and you are now acquainted with these circumstances.

A. I knew the circumstances twenty years ago.

Q. What was the circumstance? How did coffee effect you at that time?

A. I will be glad to tell the jury about that. I had reached thirty years of age before I ever drank a full cup, I think of coffee, in my life. Not because I had any prejudice against it, but simply because I liked milk better, and I was in Germany at the time this happened; it was in 1888, I had a light German breakfast, and some coffee—coffee milk, and some rolls, and I did'nt get anything to eat until nine or ten o'clock at night, or possibly I may have had a little but not an adequate noon-day meal, and at nine or ten o'clock I was at the Hotel Bellvue in Dresden and when I ordered my dinner I noted notices were put up that the water was infected and not to drink it and I had my choice between wine, beer or coffee. I had not gotten used to drinking beer at that time, at least, and so I ordered a pot of coffee with my meal, and I thought I never tasted anything so good in all my life as that coffee, and I drank the pot; how much there was in that pot I cannot tell, three or four cups, pretty strong coffee. And I found an hour or two later my pulse was beating very fast and I was quite stimulated. I could not sleep and I spent an hour or two and probably longer walking in the garden of the hotel. The next morning the ill effects were all gone and I told this story to my class, this bit of my personal experience — to illustrate two things — first, the effect of large doses of caffeine, as to how much I took I cannot say, I suppose two grains to the cupful, that would mean that I had six or eight grains or possibly more, at least that. I told it to illustrate the effect of caffeine in large quantities on one who is not accustomed to taking it and upon the temporary character of the effects.

Q. Now, then in telling that you did not speak of a pot that held four of five cups of coffee, but did you tell

your class at that time in 1896 to 1897 that you had a cup of coffee?

A. I surely did not, Mr. Miller. I remember very well, I can see that pot yet.

Q. Then you ordered a pot for two for yourself?

A. I had a pot of coffee for myself.

Q. I know, but we have pots of coffee for one person and pots of coffee for two persons. Do you mean to say you drank a whole great big coffee pot of coffee ordered for two people or for a family?

A. I don't know how much was in the pot; there might have been two or three cups.

Q. The ordinary pot that is served to one individual holds about two cups of coffee or a cup and a half?

A. I think it holds at least two cups; possibly more. I have had other experiences with caffeine if you want me to detail them.

Q. A great many of us have, Doctor. I am asking you to respond to my questions.

A. All right, then.

Q. Now, you wrote an article entitled: "Healthy Homes and Foods for the Working Classes," didn't you, and read it before the meeting of the Medical Association at Philadelphia some years back?

A. Well, you get that somewhat mixed. I wrote the Lomb prize essay for Healthy Homes and Healthy Food for the Working Classes.

Q. It was written, I should have said, for the American Public Health Association.

A. Yes, sir.

Q. Instead of at Philadelphia?

A. Yes, sir.

Q. And your attention was called to this in your supplemental cross-examination?

A. Yes, sir. That little book has been distributed in large numbers and printed in several languages and has been widely distributed among people of this country.

Q. And in that book you stated that it is not necessary to go into details concerning coffee since it resembles tea in so many of its properties?

A. Yes, sir; I did.

Q. (Reading): "The active principle of coffee called caffeine is identical in chemical composition and physiological effect with thiene of tea."

A. I did.

Q. Now, then, in writing on that you said then, didn't you: "From what has been said it will be evidence that the only time when tea should be used is late in the day

after the heaviest meals have been taken"?

A. I did make that statement.

Q. Is that true or not?

A. It is true if you take it with the preceding statement there, what has been said, that I drew that conclusion or that was a conclusion that was drawn upon experiments by Doctor Smith. I think that is right. The preceding paragraph.

Q. Do you say that is or is not true, that statement?

A. I say twenty more years of experience and observation would lead me to state that the use of tea or coffee need not be confined to the latter part of the day.

Q. So that since you wrote this and have distributed it and it has been published in so many foreign languages that you talk about, why, you have changed your opinion on that subject?

A. I have modified my opinion. If I erred I erred on the side of limiting the quantity.

Q. You erred on the side of limiting the quantity?

A. Yes, sir.

Q. You stated further that for weak and debilitated persons it is not suitable or should be used very sparingly, didn't you?

A. Yes, sir.

Q. Have you modified your opinion on that point?

A. I should not be so solicitous for the effect of tea and coffee on the weak and debilitated.

Q. You think now it would not affect them?

A. It might.

Q. It might?

A. Yes, sir; there may be exceptions.

Q. It has a tendency to produce sleeplessness ——

A. (Interrupting) Yes, sir.

Q. Have you modified your views on that subject?

A. No, sir.

Q. If sleeplessness be produced you know that it is not beneficial to health, but on the contrary, deleterious?

A. Not always; I should not go quite as far as to say that. Some people sleep too much.

Q. Is it true that the average man, and didn't you state in your deposition given at Ann Arbor, that the average man did not sleep enough?

A. I do not think I made any such statement.

Q. Didn't you state in this connection—to refresh your recollection — that if a man did not get the normal rest —

A. (Interrupting) Yes, sir.

Q. And that therefore he should take a stimulant?

A. If a man did not get his normal rest.

Q. If he gets his regular amount of sleep, he then does get presumably his normal rest, doesn't he?

A. Yes, sir.

Q. Then isn't it true that you stated in Ann Arbor that man did not get the requisite amount of sleep on an average?

A. I said he might not get it.

Q. That he might not get it?

A. He might keep awake, so he would not get the normal rest.

Q. And if he didn't get the normal rest, then he would not get the requisite amount — I mean, if he didn't get the normal sleep he would not get the requisite normal rest?

A. Certainly.

Q. And if he didn't get normal rest his health might be impaired as the result?

A. Yes, sir; certainly. Certainly, certainly.

Q. And as a result premature nervousness would be brought on?

A. It might be; yes.

Q. And in your book on Cellular Toxins, I read this statement, is it correct or not, at page 345. (Reading):

"The action of caffeine is directed upon the central nervous system, the muscles and the kidneys."

A. Well, read along a little further.

Q. I am asking you if that is a correct statement, is that a correct statement or not?

A. I think there is a little more there.

Q. Now, before we get to the little more, I will read the other ——

The Court: The witness may explain that sentence if he wants to.

Mr. Miller: Well, I have no objection.

The Court: He can qualify it if he wants to.

The Witness: I should like to hear the next sentence.

BY MR. MILLER:

Q. "The effects on the central nervous system" ——

The Court: Hand the book to the Doctor and let him see if he wishes to read anything from it.

Mr. Miller: All right, sir. (Handing book to the witness.)

The Witness: Shall I read the whole of it?

BY MR. MILLER:

Q. I asked you just about that sentence.

The Court: If you want to qualify that by reading any qualifying statement you care to, you may do so.

The Witness: Well, I can't explain one sentence without the whole thing.

Mr. Miller: I thought that. I thought your Honor held the other day that portions that dealt with the particular matter under consideration should be read.

The Witness: I think it does here.

The Court: If there is any sentence there that connects with or modifies that sentence that Mr. Miller read, as I understood you to suggest there was, you may read it; if there is none, it should not be read.

The Witness (Reading): "The action of caffeine is directed upon the central nervous system, the muscles and the kidneys. The effects on the former, that is on the central nervous system, is one of increased reflex irritability which, as in the case of strychnine, may lead to complete tetanus and even paralysis."

BY MR. MILLER:

Q. What do you mean by tetanus?

A. Convulsions. The muscles contract more easily, and with large doses they become permanently contracted, passing into a condition of coagulation like that caused by heat and cold.

Q. So that the action of caffeine is directed upon the central nervous system, the muscles and kidneys, is that your opinion now?

A. Yes, sir.

Q. How does it reach the muscles and affect them, Doctor?

A. It reaches the muscles through the blood.

Q. It is brought through the blood when you take it into the mouth, in contact with the muscles?

A. Yes, ultimately it is.

Q. And what do you mean by effects on the former, namely, the central nervous system, being one of increased reflex irritability?

A. Why, the animal responds to irritation more promptly if you irritate it; it responds.

Q. He is more easily irritated?

A. Yes, sir.

Q. Or, rather, what we term more nervous?

A. Yes, sir.

Q. (Reading): "Which, as in the case of strychnine, may lead to complete tetanus and then paralysis."

A. That is when poisonous doses are given.

Q. Of course, before that you did not mean poisonous doses, you only meant doses that did not kill.

A. The latter refers to smaller doses, that the muscles

were smoothly — that refers to ordinary doses.

Q. Those are the ones you say are directed upon the central nervous system and are seen in the increased reflex irritability?

A. No, sir; the next sentence is relating to the muscles.

Q. The way the text is: "The action of caffeine is directed upon the central nervous system"?

A. That is right.

Q. The muscles and the kidneys, the effects on the former are seen in the increased reflex irritability?

A. Yes, sir.

Q. "Which, as in the case of strychnine, may lead to complete tetanus and even paralysis"?

A. Yes, sir.

Q. Are you talking about large doses?

A. Large doses; poisonous doses.

Q. Now, I go ahead. (Reading): "The muscles contract more easily and more" ——

A. That is in smaller doses.

Q. Where is the distinction, the one follows right after the other, you don't say anything about that there.

A. That is the reason it needs explanation.

Q. So that in writing this book on this subject you did not draw a distinction between large and small doses?

A. I presumed that anybody intelligent enough to read the book would understand that.

Q. If that is true, why did you use the words "Large doses" in the next sentence that you wrote, if you acted on that presumption, namely, the muscles contract more easily and more effectively and with large doses they become permanently contracted, possibly into a condition of coagulation. Now, if you presumed that the average reader would understand that in the one case, why did you not presume it in the other?

A. It is stated in that sentence — I do not recognize the fact that it is stated—it says the effect of caffeine is to make the muscles work more smoothly and of course, with larger doses. I have given the other — it seems to me the way I have given it it means smaller doses, but that with larger doses it produces tetanus.

Q. That is what I am asking you. Up to the point where you got to the qualifying term "large," hadn't you been talking about moderate doses?

A. In that sentence but not in the preceding sentence.

Q. That is all part of the text and all found together without any new paragraph in your book?

A. Yes, sir.

Q. And has been read literally to the stenographer?

A. Yes, sir.

Q. Have you ever made any animal experimentation to ascertain as to the effect of the action of the muscles under the influence of caffeine, and if so, what?

A. I have killed animals with caffeine — guinea pigs.

Q. What kind of animals?

A. Guinea pigs.

Q. Did you use an instrument or any mechanical appliance to determine the regularity of the muscle?

A. I did not.

Q. In so far as you undertook to state the regularity of the muscle action, that is purely an opinion of yours?

A. That is personal observation — small doses.

Q. What animals did you experiment on to observe the effects on the muscles in small doses or in large doses? When did you lay open the anatomy and look at the action of the muscle?

A. I never did.

Q. You know that such a thing is easily possible?

A. Yes, sir.

Q. Now, when you say a moderate dose is a stimulant, what do you mean by a moderate dose of caffeine?

A. I suppose that varies with the individual. I can tell what is a dose for me. Each one of us can tell what the dose is for himself, what we ordinarily take per day.

Q. It varies with different individuals; some drink one, two, three or four cups of coffee?

A. I suppose the dose varies.

Q. Then you are not prepared to say what is a moderate dose of caffeine?

A. I will say anything under eight or nine grains, a day, distributed throughout the day, would be moderate.

Q. That is 24 hours, but I am talking about a moderate dose.

A. Oh, two grains is a moderate dose, taken by the mouth.

Q. You would say that double the dose prescribed by the pharmacopoeia is a moderate dose?

A. Certainly. We take two grains of caffeine in many of the cups of coffee we take.

Q. It is not a question of what we do but as to what you mean by moderate.

A. Two grains at a time in the mouth.

Q. Now, you read a paper on the use of food preservatives before the Pathological Society of Philadelphia in 1904, did you not?

A. I think I did.

Mr. Sizer: I do not particularly object to going into the

subject of food preservatives, but I do not think it has any bearing on this case.

The Court: I cannot see the bearing.

Mr. Miller: The object is that we want to show that substances brought in contact with foods as preservatives have poisonous effects, and that is what I am trying to prove about caffeine.

The Court: Ask him about caffeine, then.

MR. MILLER:

Q. In that you undertake to define what a poison is —

Mr. Sizer: That is on the subject of preservatives and until he shows that caffeine is a food preservative this discussion is irrelevant.

Mr. Miller: They asked him yesterday to define a poison, and I want to show his different definitions.

The Court: You may show his definition of poison if it is different from the one he gave here.

MR. MILLER:

Q. Do you not define a poison this way: "Therefore, a poison may be defined as a substance that destroys or impairs the cell function by virtue of its chemical constitution"?

A. I think I defined it that way yesterday.

Q. You subscribe to that now?

A. Certainly.

Q. "A substance that combines with and consequently interrupts the functions of the cell of the respiratory centers of the brain causes the speedy death of the individual while those substances that destroy the blood and the liver and the kidney cells are slow poisons, inasmuch as the life of the individual may survive the destruction of a large number of these cells, but those of one class are just as truly poison as those of the other." You used that language?

A. Yes, sir.

Q. And that is your view now?

A. Yes, sir.

Q. Is it not true that all poisons are such because they destroy or impair the action of certain cells of the body and the immediate effect on the life of the individual depends on the kind and number of cells put out of commission?

A. I think that is true.

Q. In one of your articles on food for the workingman, or in substance that, don't you use this language, and is it true or not: "Considerable discussion has been carried on over the question of whether or not its use (that is, mean-

ing tea, in which the active constituent is theine) increases waste of tissue. This may now be considered as settled in the affirmative."

A. I think I did make that statement. I stated that it had apparently at that time been settled in the affirmative, but there have been experiments since that that controverted that.

Q. Have you conducted any of those?

A. No.

Q. You were called before a committee, or appeared before a committee as the representative of a manufacturer at the time this Pure Food and Drugs Law was under consideration by the National Congress, did you not?

A. Yes, sir.

Q. Now, when you were called on there to tell what would be a poison or state your views as to how much of any given substance could be taken into the body daily, was not this the standard which you gave, or the reply that you gave to Mr. Mann, of the committee, when the question was put to you: "I should say certainly — (speaking of a given substance) ——

Mr. Sizer: What substance?

Mr. Miller: The substance that Doctor Vaughan appeared for, if you want me to name it.

Mr. Sizer: Yes, name it.

Mr. Miller: Benzoic acid was what he appeared for.

BY MR. MILLER:

Q. Now, as to what could be safely taken into the body of a given substance ——

The Court: Benzoic acid?

Mr. Miller: Yes.

The Court: That is immaterial. It is not a question of what amount of benzoic acid can be taken in We are inquiring as to caffeine.

Mr. Miller: This is a general statement. He made a statement defining the amount that might safely be taken into the body and based it on a certain conclusion that I think is quite important, namely, the amount generated in the body of the substance.

The Court: Well, proceed.

BY MR. MILLER:

Q. You were asked this question: "How much can you eat without injury"? and didn't you answer Mr. Mann thus: "I should say certainly the amount that is formed in your own body which is from one to ten grains a day"?

A. Of benzoate of soda.

Q. Then the standard of measurement that you could safely take without any untoward effect was the amount formed in the body?

A. Of benzoate of soda.

The Court: I think that was limited to benzoate of soda and has no bearing here.

BY MR. MILLER:

Q. Did you or not state that the amount of caffeine which can be safely taken into the body without injury is that which is formed or generated in the body during the day?

A. No, sir; I did not say that.

Q. Do you know how that is?

A. No, there is no caffeine generated in the body.

Q. Is there any xanthine generated in the body?

A. Yes, sir.

Q. How much per day?

A. I do not know.

Q. Then if you do not know how much xanthine is generated per day in the body, how can you say how much you can safely take?

A. Only from experience how much caffeine we can take.

Q. Then you do not pretend to say except in individual cases how much can be safely taken into the body without injury?

A. I think we can average the cases where so many people take it.

Q. A great many people are taking morphine and cocaine, but I am not talking about them. I want to know if there is a test by which we can determine the amount that we can take daily in the body without injury.

A. Nothing except experience, so far as I know.

Q. Does or not the fact that xanthine is found in the body in certain quantities determine or give us any test by which we may approximate the amount of caffeine that may be taken into the body?

A. I do not know; I could not answer that question. I do not know anything about it.

Q. Do you know what, if any, valuable attribute of xanthine there is when it is found in the body?

A. I cannot be positive about that. I have no positive knowledge on that.

Q. You have been attending this trial how long, Doctor?

A. I came here a week ago last Sunday.

Q. Do you mean to state that xanthine is one of the

normal constituents of the body or that we merely find it in the body?

A. I think if we find a substance constantly in normal bodies, it is a normal constituent of the body.

Q. Where do you find it, after what process?

A. I don't know. I suppose it might be found in the muscles. I never tested for it in the muscles.

Q. That is pure supposition on your part?

A. If a thing comes from the body and it keeps coming, then there must be some of it in the body.

Q. But if you keep eating xanthine products and keep drinking xanthine products which might furnish it in the body, it would certainly keep coming?

A. Certainly.

Q. Now, my point is how you know that xanthine is a constituent of the body as contra-distinguished from a substance formed in the body in the breaking down of the cells and after the degeneration of the cells and organs occur.

A. I don't think I could make any such distinction.

Q. Then you do not undertake to say that xanthine as such is found in the cell free?

A. No, I do not think it is.

Q. You do not undertake to state that, that xanthine is found in the nucleic acid?

A. It is in combination.

Q. Is xanthine in combination there and can you take the nucleic acid and extract xanthine from it?

A. Yes, sir.

Q. Have you done that?

A. Yes, sir.

Q. When it is liberated and becomes xanthine, — do you know when that is?

A. I don't know when, but it does occur.

Q. Don't you know from your reading and are you not prepared to give a scientific opinion, that xanthine as such does not occur until that cell becomes impaired and begins to break down and the former substance is ready to be eliminated or about to be eliminated from the body?

A. I know that is true.

Q. Then after you combine one atom of something else with this xanthine, you form uric acid?

A. Yes, sir; it may be oxydized into uric acid.

Q. Instead of "maybe", is it not a fact that is the way it is combined in normal process?

A. In part.

Q. What is the remainder of it?

A. The remainder of it goes out as xanthine. Some of it probably is burned as urea.

Q. Yesterday in answer to a question you stated it this way, when asked if caffeine was related chemically or physiologically to one of the normal constituents of the human body, and if so to state how, you answered: "Caffeine is a trimethyl xanthine and when taken into the body is stripped of its methyl accompaniments and reduced to dimethyl and monomethyl and sometimes probably to xanthine itself." Now, I want to know on what you base that statement, or if you wish to go on record as making the statement that caffeine is reduced to xanthine as such.

A. I said probably, and I am willing to stand by that statement.

Q. Does that mean you have made any experiment to determine that?

A. No, sir; I would not say probably if I had made an experiment.

Q. What do you say?

A. I would not qualify it, I say. I would not qualify it and say probably if I had made experiments.

Q. And as to the amount of caffeine that might be given and the avenue of administration — they are two factors that you mention in determining whether or not caffeine was a poison. Now, I will ask you if that is not too broad and if you should not take into consideration in that connection the age and the size and the temperament of the individual.

A. Oh, I suppose so; yes.

Q. So that what might be a moderate dose for one individual might be a very immoderate dose for another?

A. I suppose so.

Q. Your deposition was taken at Ann Arbor some weeks ago, and in comparing the effects of cocaine and caffeine, did you not say this as to cocaine: "It is a more powerful poison," meaning it was more powerful poison than caffeine, — "and the person who uses it has a tendency to increase the dose"?

A. I think I made that statement. It is a true statement, at least.

Q. In one of these Zenetz cases — I have the entire article translated, of which I believe you have seen a copy.

A. No, sir, I have not seen a copy.

Mr. Hirsch: That was not given to us until ten o'clock last night and it was taken right back.

Mr. Miller: It was agreed to.

Mr. Hirsch: No, sir; it was not agreed to.

Mr. Miller: I am sorry, I misunderstood it.

BY MR. MILLER:

Q. You are credited with stating that in the article by

Doctor Zenetz, treating of caffeine and caffeine poisoning, he stated that the heart was difficult to cut with a knife. Did you not incorrectly state the text of Doctor Zenetz in that connection?

A. I don't think so. I think he used the word "Mude," which means make one tired to cut it.

Q. Was not that an entirely different case from what was referred to by you?

A. It might have been.

Q. If you were wrong in that connection, which you say may be probable, of course the conclusion following with respect to that particular case which you drew could not be correct?

A. There might have been some other word meaning the same thing.

Q. But if it be true that the author did not state that, then the conclusion you drew that the heart was fibrous might be wholly incorrect?

A. Certainly, if I misread the article the conclusion might be incorrect.

Q. If a doctor of Doctor Zenetz' standing reported on a case and simply reported that the heart was cut with difficulty, that would mean as compared with ordinary or normal hearts found in an autopsy?

A. I should interpret that to mean that it did not cut as easily as normal tissue and that the tissue was abnormal.

Q. Certainly. There are two kinds of stimulation, one artificial and one natural or normal?

A. Well, I guess we could have that classification.

Q. Now, to which class does drug stimulation belong?

A. It depends upon the circumstances whether it is natural — of course, all stimulation is artificial in a sense.

Q. Then we do not have but one class if that is true?

A. It is all artificial to some extent. If we make an effort to walk the effort is artificial.

Q. Then what did you mean by saying we might have two general classes?

A. We might say that one is more artificial than the other.

Q. Is drug stimulation more artificial than the other?

A. Depending on what you mean by drug stimulation. I would say that drug stimulation might be abnormal just as I would say that eating or anything else might be abnormal.

Q. But natural stimulation would be by ordinary eating?

A. And drinking beverages.

Q. But you don't mean alcohol?

A. A certain amount of alcohol — a certain amount of stimulation might come from alcohol.

Q. But do you mean to put alcohol in a class that produces normal stimulation?

The Court: That is immaterial.

Mr. Miller: Not from our point of view, and I reserve an exception.

The Court: You may note an exception. You can examine all you want on caffeine, but we have had enough of alcohol.

Mr. Miller: I understand that that portion of his testimony dealing with whether or not the administration of caffeine would have an injurious effect was stricken out on yesterday.

The Court: The statement of the witness that in his opinion it would have a beneficial or injurious effect — whenever he expresses his opinion, that was excluded, but the statement of fact that he made with reference to it was not excluded. I think that ruling should be qualified in view of what has occurred to correspond with the ruling made when the Government witnesses were on the stand. Wherever a witness is a physician he may, in addition to stating the facts, state as a physician his opinion as to whether those effects would be injurious or beneficial to general health. I permitted the Government witnesses to state that certain things would be injurious to general health and I will now permit the witnesses on your side to state their opinion as to whether it would or would not be beneficial to general health. That would be, of course, limited to physicians or persons qualifying themselves to express an opinion as to general health.

BY MR. MILLER:

Q. When your deposition was taken at Ann Arbor, did you not state ——

The Court (Interrupting): Let me state — I have not yet made the suggestion to you that I made to Mr. Sizer and I will now do it. I do not think it is well to ask a witness first whether or not he did not state a certain thing. You should ask him as to the matter and generally he will state just what he said before and you will save that time. If he states it any way differently then you can ask as to the former statement.

BY MR. MILLER:

Q. State whether or not you have heretofore stated —

The Court: That is just what I say not to do. Just ask him now as to the facts that you want to prove. If he

makes any different statement you can bring out the contradictory statement in his deposition, but it is not competent to start out by asking him — didn't you in your deposition say so and so.

BY MR. MILLER:

Q. What reason, if any, have you for recommending or for concluding that the average man might take a cup of coffee in the morning?

A. I know from my own personal experience that is beneficial to me. I feel that it is, and so far as I can judge from patients and those that have been under my observation, they feel better if they have a cup of coffee.

Q. Is that or not the cause of the fact that they do not sleep long enough and do not get over the fatigue that results from the previous day's work?

A. No, sir; I think it is quite often due to the fact that they may get too much sleep.

Q. In giving your deposition at Ann Arbor when asked on that point, were you not asked this question and did you not answer it this way:

"Q. What is the object of relieving the fatigue otherwise than naturally, that is, by rest and sleep?

"A. I think that the majority of the people do not get over their fatigue in the morning. I think it is when we feel fatigued most, when we wake up, and I think that is when coffee does the most good."

A. That is true and I still make it.

Q. The object of taking coffee is because they do not get sufficient sleep, and therefore do not get over the fatigue?

A. No, sir. I think you take coffee in the morning to wake yourself up when you need to be waked up.

Q. How do you reconcile that statement with the statement just accredited to you that people do not get over their fatigue in the morning?

A. I mean, do not get over the sleepy feeling.

Q. You mean, "sleepy feeling" by "fatigue"?

A. Yes, sir.

Q. Is that fatigue in the sense in which you use it?

A. No, sir; not entirely. I must admit ——

Q. How many senses ——

Mr. Hirsch: Let him answer. He has not finished his former question. He said: "Now I admit," and you interrupted him.

The Witness: A man may feel fatigued from work. He may get up in the morning very much fatigued because he has slept too much and probably I should have used some other word than fatigued. I admit that that was a loose

use of the word "fatigue" — it should have been "drowsy."

BY MR. MILLER:

Q. In one sense, when you said fatigue you meant drowsy?

A. Yes, sir.

Q. And in the other sense in which you meant fatigue, did you mean tired?

A. A tired feeling.

Q. Then you have used it in two senses?

A. I think I have.

Q. How many cups or how much caffeine do you state that you recommend to an average robust person, or that you think is beneficial? I believe you said it was beneficial.

A. I think most persons can and do drink three cups of coffee a day without harm, and many of us drink more than three cups a day.

Q. Now, when your deposition was taken, was not that question, in words substantially, put to you and didn't you state that you thought most persons could take one cup?

A. Yes, sir; they can take one cup if they can take three.

Q. Now, if, when your deposition was taken on February 1, 1911, you put the limitation at one cup ——

A. (Interrupting.) I didn't put the limitation at one cup.

Q. Didn't you in words in substance then state that you believed the everage man could take one cup?

A. Certainly.

Q. What did you mean by that if you didn't mean it as a limitation?

A. I did not mean it to be a limitation. If I say a man can take one cup it does not mean that he cannot take two.

Q. When you were asked to state then and there what could be taken by an average robust man and you said one cup, if you thought he could take more why didn't you state it?

A. If you will read that deposition you will find I did.

Q. I have it here and I do not see it.

A. That is my remembrance.

Q. Now then, this question was asked you:

"Q. What amount do you recommend them to take?" after you had stated that you thought people were better for taking a certain amount ——

"A. Well, a cup of coffee in the morning, anyhow; from one and a half to two grains of caffeine, as usually pre-

pared.

"Q. Is that the extent of your recommendation for a normally healthy person?

"A. I do not know that I put any special limit on it. Of course, I advise against the excessive use of coffee as I do against the excessive use of everything."

Now, when you were specifically questioned as to the amount that could be recommended and that you thought could be taken, if you meant that more than one cup could be given, why didn't you say so?

A. If you read on I think you will find I did say so.

Q. I do not find it in this connection, and if counsel find it I shall be obliged to them.

Mr. Sizer: You are asking for it and here it is.

Mr. Miller: What page is it on?

Mr. Sizer: I am reading from the printed copy and it is not paged correspondingly with yours:

"Q. Is not that the standard you have fixed and do you not mean so to be understood?

"A. No, sir; I do not want to be understood that way. I mean to be understood that I think the average person is benefited by one cup of coffee in the morning. Now, whether he should take more depends on the individual, etc. I do not think as a rule that three cups a day hurts the average man."

BY MR. MILLER:

Q. That is what you believe might hurt him, but I am talking about what would be beneficial, and that is what I asked you about as the stenographer's notes will show, and I understand you to say that more than one cup can be taken with beneficial results?

A. I think a majority of the people take more than one cup with beneficial results.

Q. Then when this question was put to you why didn't you say so?

A. I think I did say so finally.

Q. Do you think that extract read by adverse counsel was a portion of your deposition to which you refer now?

A. I think so.

The Court: I think the cross-examination has been exhausted on that subject. It does not contradict anything he has said and it should be limited to contradictory statements.

Mr. Miller: We would like an exception.

BY MR. MILLER:

Q. Don't you know or believe that the effects of caffeine on children are highly detrimental?

A. The word "children" is quite indefinite. I should say under five or six years of age or even seven years of age caffeine should not be given to children.

Q. Why not?

A. Because there is already in their bodies a large amount of tissue which furnishes the xanthine bases. The glanular tissue in the child is much greater in proportion to his size than it is any other time in his life, and he gets the xanthine in his body and often gets them in excess, and you will often find xanthine in the kidneys of a child. Nature has provided children with the xanthines in their free food as long as they are nursing.

Q. And you do not think it should be given to them up to seven?

A. To be safe I would say up to seven, certainly not before, and possibly not for three or four years later. I think nature has pointed that out very distinctly.

Q. You have never gone on record in any of these societies of which you are a member or before which you have read papers, as advocating the use of caffeine, have you?

A. I think in that essay on healthy homes and healthy foods I have advocated the use of tea and coffee.

Q. Were you not asked to state whether you had ever recommended its use except as a drug ——

A. (Interrupting.) I must admit I did not think of that essay at that time and there are other things that I did not think of just then.

Q. If you have ever made a recommendation of it, it is in this treatise I have read to you?

A. I lay out the daily dietaries of the patients at the hospital and it always contains coffee.

Q. I am speaking of public recommendations you have made as a member of societies to which you have belonged.

A. I do not remember that I have published any other articles than that, but I prescribe the daily diet of my patients.

Q. You prescribe morphine for some?

A. Yes, sir; but I prescribe caffeine for all.

Q. I thought you said you did not prescribe it for children.

A. No, sir.

Q. Then you are mistaken as to that?

A. Yes, sir, to that extent and I am glad to be corrected.

Q. Is it not a fact that you do not go to that hospital but about once a month?

A. Oh, yes; I go to the hospital oftener than that.

Q. When you say that caffeine would not be recom-

mended for a child under six or seven years of age, or that you would prohibit or restrict its use, you mean it might have a deleterious or bad effect on it?

A. I think so.

Q. Caffeine is recognized as a drug?

A. Yes, sir; it is.

Q. Are you acquainted with any reputable treatises that advocate the use of caffeine — I mean medical treatises — that advocates the use of caffeine for general consumption by individuals?

A. All works on hygiene and dietetics, so far as I know, have either coffee or tea among the foods recommended for daily diet.

Q. Were you asked that question at Ann Arbor?

A. I think I was.

Q. Was not your answer "I don't know that I am"?

A I believe it was.

Q. So you forgot that, then?

A. Yes, sir.

Q. You made a mistake then?

A. Yes, sir.

Q. You don't know whether you were mistaken then or now?

A. Yes, sir; it is simply that I did not think wide enough then; I was not wide enough awake then, I suppose.

Q. Asked to define the minimum dose of caffeine for an adult, what would you say?

A. You mean therapeutically?

Q. Yes.

A. I believe the dose given in the Pharmacopoeia is one grain, which is perfectly absurd. I would say from three to five grains would be proper, except for children.

Q. You are a member of the medical association which adopted that Pharmacopoeia?

A. I am a member of the American Medical Association, yes, but there are a great many things that that association does of which neither you nor I would approve.

Q. Is arsenic a poison?

A. Oh, yes; I think it is poisonous.

Q. It is found normally in the body?

A. That is a question. I would be inclined to say that in very small traces arsenic is found normally in the body.

Q. Is strychnine a poison?

A. It is.

Q. Because a certain drug does not produce an observable harmful effect does not at all prove that it is not deleterious, does it?

A. No.

Q. Is it not true that even one or one and a half grains of caffeine to many persons prove harmful?

A. That might be. I should doubt it very much but still I would not deny the possibility of its being true.

Q. Did you not state that when persons were not in perfect health that that might be true?

A. It might be true.

Q. Don't you know that the use of caffeine is very frequently prohibited and should be prohibited in many cases entirely?

A. I have no doubt there are many people who would not take caffeine at all; at least some. I do not know how many.

Q. You did say many?

A. Yes; taking the world over, there must be a great many.

Q. It is not true that in a very great many children, up to the age of twelve years, the effect of the consumption of caffeine would be harmful?

A. I said under seven years I prohibit it altogether. Above that there may be some and no doubt there are many to whom it should not be given.

Q. In fact, is it not true that you could not say or would not say that any of them should receive its administration unless they would be in perfectly normal health?

A. I would not want to go that far.

Q. Did you not go that far when your deposition was given?

A. I don't think so.

Q. Were you not asked this question:

"Q. And is it not true that would be in a very large percentage of cases?

"A. I don't know how large a percentage that would be true in.

"Q. But your opinion is it would be true in a great many?

"A. Yes; in a great many children, but in perfectly healthy children I do not think it would be."

A. That is substantially what I have answered here. I do not think there is any contradiction. I did not intend it in any meaning that would contradict anything that I have said here.

Q. Is it not true that the normally healthy person does not require what might be termed artificial stimulation?

A. I think to go into that in detail would lead me to say that "normally healthy people" is a wide variation and that man is a machine and that the purpose of the machine

is to work. A locomotive that runs ten miles a day may be perfectly normal. A locomotive that runs fifteen miles a day may be perfectly normal. So a man who is at rest is normal and a man who is at work may be normal, and still he is wearing out tissues faster when he is at work than when he is not.

Q. The fact is that mankind may be likened to a sort of automatic piece of machinery that of itself repairs itself in normal process?

A. Yes, sir.

Q. Now I ask you in that normal process receiving the normal amount of sleep and in normal health, if that individual, that mankind required artificial stimulation?

A. I do not see how man could live without artificial stimulation. Of course, all his thought and study and reading is artificial stimulation.

Q. But sunshine does not come from mankind, but from nature?

A. Yes, sir.

Q. And that is natural stimulation?

A. Yes, sir. So does caffeine; it comes from nature.

Q. But not until man extracts it by processes?

The Court: I think the question in that form is too motaphysical. You may get to concrete instances about caffeine if you wish.

Mr. Miller: My object in asking that is because the Doctor stated there were two kinds of stimulation, natural and artificial.

The Court: The question before us is one of fact as to the effect of caffeine.

BY MR. MILLER:

Q. I want to put the question in this form: Does the normally healthful individual receiving normal food, normal sleep and taking normal exercise, require artificial stimulation?

A. If you mean by caffeine I could certainly leave that out. There is no doubt a man could leave that out but he feels better and is able to do more work with it. That is my opinion without doubt.

Q. Do you class caffeine as an artificial stimulant in that division of yours or not?

A. I think caffeine is as near a natural stimulant as you can get. I do not know of any beverage which is so near a natural stimulant as caffeine.

Q. But you are not prepared to say whether it is or is not?

A. No, sir; I have no absolute knowledge on the subject.

Q. If you give caffeine when it is not required, it becomes injurious and harmful?

A. I should not like to make that statement. You may give an excess of caffeine and might give it to people who might be injured by it. There is no question about that.

Q. Was not that direct question put to you at Ann Arbor in these words:

"Q. And in the same way with caffeine, if you give it and it is not required it becomes injurious and harmful?" And your answer was:

"A. Yes, sir."

A. Yes, sir. "When it is not required" — that is capable of several meanings.

Q. But that was your answer?

A. Yes, sir.

Q. And you stand by that?

A. Yes, sir.

Q. By "harmful" you mean deleterious?

A. Yes, sir.

Q. You hold that a man is his own best physician in many respects?

A. I do. Certainly about his food and his drink.

Q. By coca is generally understood the leaf of the product of the coca plant, is it not?

A. I think if I were talking to a lot of medical men I should understand it to be the coca leaf. If I went into a grocery and asked for coca I would expect to get chocolate.

Q. You mean, you would expect to get cocoa?

A. Yes, sir.

Q. But if you were talking about coca?

A. I don't think there is enough difference in the pronunciation for many people to see it. If I go to a grocery and went into the grocery and asked for coca, they would give me Baker's Chocolate.

Q. But that does not answer the question.

A. I want to answer it fairly.

Q. What I mean is, if you call for coca, don't you know that that implies the leaf?

A. It depends on where I would call for it.

Q. Didn't you state in giving your former deposition that coca, by that term was generally understood the leaves?

A. Yes, sir. I think when you speak of the coca tree or any product of that you mean the leaves. The word coca means several things.

Q. If you have so many views of it when you are asked

here, why didn't you give them in Ann Arbor instead of giving a straightforward answer "yes"?

A. I did give a straightforward answer. When I speak of it medically I mean coca.

Q. But you were talking to a lawyer when you were talking to me?

A. Yes, sir, but you were an expert on that subject.

Q. No, sir, I am not. I wish I were, to cross-examine you.

The Court: The things that the witness did not state are not material. It is a question of what he did state. There must be some limit to this cross-examination.

BY MR. MILLER:

Q. What is generally understood by the term coca is the leaves?

A. Yes, sir; among medical men.

Q. But you did not put that limitation on it when you were asked that same question in Ann Arbor?

A. No, sir; I don't think I did.

Q. You were present in the court room when Doctor Rusby was examined?

A. Yes, sir; I was.

Q. Are you sufficiently acquainted with Doctor Hyde's work on nutrition to say whether it is standard?

A. In a general way I should say it was standard. That does not mean that I would approve of everything in his work, of course.

Q. He was the first man who worked out the manner of ascertaining the income and outgo of nutrition, was he not — the units represented by the income and outgo?

A. I think that was the elder Hyde who did that. This is his son.

Q. But one of them worked that out?

A. Yes, sir; the old man.

Q. And that has been accepted as the standard since?

A. Yes, sir.

Q. Are you prepared to state definitely the percentage of caffeine in cocoa?

A. No, sir, I am not. Not from my personal knowledge.

Q. Did you ever conduct any human experiments with caffeine? That is, experiments on humanity?

A. No, sir.

Q. Why not?

A. I never had occasion to.

The Court: That is immaterial and you need not go into that.

REDIRECT EXAMINATION,
BY MR. SIZER:

Q. You were asked whether you were aware of any work on food that recommended the use of caffeine and caffeine-containing substances. Are you familiar with Bunge's Physiological and Pathological Chemistry?

A. Yes, sir.

Q. Do you know whether or not that work recommends caffeine-containing beverages as food?

A. I think it does. It has been a long while since I read it.

Mr. Miller: On the examination of our witnesses we were not permitted to offer them books to read from.

The Court: On the contrary, you were allowed to offer lists.

Mr. Miller: When the counsel called for them.

The Court: Oh, no. The witness said a great many authors recommended tea and coffee in diets and I allowed your witness when he was called on for authorities on cross-examination to give a list.

Mr. Miller: Then I withdraw the objection. I did not recall that that had been done.

Q. I will ask you, Dr. Vaughan, to prepare a list of food authorities on foods and dietetics which recommend or include in their list of proper foods caffeine drinks, and we will submit the list of them to opening counsel, and I will say that we have Prof. Bunge's work here if you like to see it; and another one we have — are you familiar with Sherman On Food and Nutrition?

A. I have seen the book and read part of it.

Q. That is a very late work is it?

A. Yes, I think so.

Mr. Miller: You mean it shows foods?

Mr. Sizer: We have the book and submit it to you.

BY MR. SIZER:

Q. Now, you were also asked on cross examination if you knew any authorities that stated the length of time tea and coffee and caffeine-containing drinks had been used. I want to ask you if you are familiar with Hutcheson on Foods and Dietetics?

A. I know the book in a general way.

Q. Now, I want to hand this to you and ask you if you find anything on that point there — I have marked the places there with respect to the use of tea and coffee.

The Court: He was asked the specific point whether he knew or not and the witness said that tea and coffee was used some three or four hundred years in Europe.

Mr. Sizer: That is what I am offering this book for.

The Witness: Shall I read this.

The Court: You are asked the question whether the book does show that fact?

The Witness: It does show that fact.

BY MR. SIZER:

Q. What does that book show with respect to the introduction of tea and coffee into Europe?

A. Tea was introduced into Europe by the Dutch in 1610 and coffee introduced in this country (that is England) in 1652 by Sir Daniel Edwards, a retired Samarian, who set up his Greek servant in the Coffee House, first of its kind in London in St. Nicholas Lane, Cornhill.

Q. Now, doctor, with respect to the use of caffeine containing drinks in this country have you any statistical knowledge of a little trouble in Boston along in 1700, something about a shipment of tea?

Mr. Miller: I object to that: I didn't ask anything about that. I didn't ask a word about that; that is entirely irrelevant.

Mr. Sizer: I think he did ask the question as to how long tea or coffee had been used in this country.

Mr. Miller: I confined myself to coffee exclusively.

The Court: I think the court and jury will know about that ——

BY MR. SIZER:

Q. Now, Mr. Miller in his cross examination undertook, Doctor Vaughan, to divide stimulants into two parts, namely, normal and artificial —is that a proper division of stimulants or in other words are all artificial stimulants necessarily abnormal?

Mr. Miller: I object to that question as being suggestive, and not in response to reference to anything that I was permitted to ask about, your Honor would not permit me to enquire into that.

The Court: The exception is sustained on the ground that the question is leading. I do not see any value in an academic discussion of whether a given stimulant is called artificial or normal.

BY MR. SIZER:

Q. You stated, Dr. Vaughan that the quantity of caffeine, I believe you stated that could be taken would depend largely on the individual. State whether or not that is true with any food substance?

A. Yes, it certainly is.

Q. Now, this Zenetz article — you were asked on cross examination about that, as to the contents of it. I wish to send you up the report of that Zenetz article and ask you if that is the article that you referred to, and if it uses the word you stated on cross examination in describing the condition of that heart?

A. (Examining book.) The heart let itself be cut or cut with a knife only with difficulty or with effort.

Q. Now, that is the article to which you were referring on your exanmination in chief or on cross examination?

A. Yes, sir.

Q. Your attention was called on cross examination to a definition that you had given on some previous occasion of the term "poison" in which you describe it as a substance that impairs or destroys cell function. Now within that definition, doctor, is caffeine a poison, does it destroy or impair cell function?

A. I do not think it does when given in beverage doses.

Q. On the contrary, Dr. Vaughan, does caffeine as taken in beverage stimulate and enhance cell function?

Mr. Miller: I object to the skillful counsel forming the question in that way.

The Court: The objection is sustained.

BY MR. SIZER:

Q. Then I will ask you if it does not destroy or impair cell function what is the effect of caffeine taken in beverage?

Mr. Miller: I object to that.

The Court: I didn't get the question ——

Mr. Sizer: Now I will ask this question ——

Mr. Miller: Another point of my objection is the first part of that question — he leads right up to the point and suggests in the question if it does not do a certain thing what does it do? It is argumentative.

Mr. Sizer: I will eleminate the first part.

The Court: Yes, eliminate that; I do not think the form of the question is very material in examination of these experts.

BY MR. SIZER:

Q. I will ask you what is the effect of caffeine taken in beverage on cell function?

A. As I have already stated, caffeine stimulates the brain to a certain extent, the heart muscles, the kidneys, and therefore its effect is to highten or increase cell activity to a certain extent, if taken as beverage.

Q. Now, Mr. Miller asked you the question whether you could recommend the amount of caffeine that a man could

safely take in a day by the amount he produced in his body. Would that be the proper rule of regulating the amount of any food that a man could take?

A. I don't think so.

Q. Does a man produce any food product in his body?

A. I don't know that he does; he produces his own muscle and he may have at times to live on his own muscle but he certainly does not produce food — he does make a certain amount of fat in his body.

Q. That is the fat produced in the body?

A. Yes, sir.

Q. Could a man regulate the amount of meat and bread he would eat in a day by the amount he produced in his own body?

A. Certainly not.

Q. Are there a number of other food articles besides caffeine that contain xanthine producing bodies, and if so state a few of them?

A. Why, the meats that we eat contain more or less xanthine — some of them a great deal of xanthine yielding substances. This is especially true of sweet breads, Russell sprouts for instance, containing trace of xanthine bodies; I amagine traces of xanthine bodies are found in some other vegetables that we eat.

Q. You stated on cross examination that caffeine makes a man feel better taken moderately in the form of beverages. Is that sort of result injurious to the average man?

A. I think not.

Q. Does the qualitative effect of a substance of this kind depend upon the quantity taken and does it vary according to how it is taken?

A. Yes, sir.

Q. That is the qualitative effect of a small amount is sometimes different from the qualitative effect of a large amount?

A. Yes, sir.

Q. Now, this diagram was presented to you on cross examination — that represents a number of xanthine bodies, as I understand?

A. Yes, sir.

Q. You say that one of these xanthine bodies, namely paraxanthine is poisonous?

A. Yes, sir; they could be poisonous in large amounts, especially if given hypodermically or intravenously, and I think the most poisonous one is paraxanthine.

Q. And, on the other hand, there are a number of these xanthine bodies that are not poisonous in small amount?

A. Yes, sir.

Q. And when taken by the mouth?

A. I don't know that paraxanthine would be poisonous taken by mouth or not.

Q. For instance, theobromine, you have already testified is an alkaloid found in chocolate and cocoa?

Mr. Miller: If he has said it I admit the question is not competent, and if he has not stated it, it is not in proper form.

The Court: It is immaterial, it has been proven so many times.

Mr. Sizer: Yes, I think so.

BY MR. SIZER:

Q. You testified xanthine produced convulsions. Now in what way do xanthine produce that result?

A. I have produced convulsions in guinea pigs by giving xanthine, by injecting it into the abdominal cavity.

Q. Did you ever produce convulsions by injection, I mean by giving the xanthine by the mouth?

A. I never administered xanthine by the mouth.

Q. Now, referring to your work on cellular toxins, by Vaughan and Novy, their language was quoted (reading): "The muscle contracted more easily, and by large doses became permanently contracted, passing into a condition of coagulation like that caused by heat and cold." Now would heat and cold produce that same effect?

A. Yes, certainly if directly applied to the muscle.

Q. Just as xanthine if applied?

A. Yes, at least similar, I wouldn't say it was exactly the same.

Mr. Sizer: Now then all these articles you read from — do you introduce them in evidence?

Mr. Miller: Just the passage that I read.

Mr. Sizer: I think it would be fair if any passages are offered, that the articles should be introduced.

The Court: They may be submitted for your inspection, and if there is any part bearing on the particular subject or qualifying the meaning, you can offer that.

Mr. Miller: They were submitted weeks ago in this supplemental cross examination.

Mr. Sizer: Then I understand we may take these articles, and if anything in there we desire to offer in evidence we may do so.

The Court: No, that is too broad a statement of my ruling; I meant to state if you found in the article anything that modified or qualified the statement to which attention of witness was called on cross examination you

may read it. The other parts of the article will not be introduced.

BY MR. SIZER:

Q. Now, you were asked about the time you came here, doctor. Did a number of other eminent experts come along about the same time on the other side?

A. Yes, sir, Dr. Boos and Dr. Wiley.

Q. Doctor Boos and Doctor Wiley — any others?

A. I saw these gentlemen soon after I arrived; I don't know whether they came before I did or later.

Mr. Miller: We did not quite catch about the amount that was formed normally in the body. As I recall the witness was asked whether or not it would be a proper test to ascertain whether a certain thing would or would not be deleterious, meaning it in proportion to that quantity that was formed in the body daily.

The Court: Hardly that, as I recall it. He was asked whether the proper test of the fact was the amount formed in the body daily, the proper test of the amount of food to be taken.

Mr. Miller: I move to exclude that question and answer first, because it has not been shown that caffeine is a food.

The Court: I overrule the exception, that is a question the jury has to pass on.

Mr. Miller: In the case of preservatives, a certain amount of preservatives such as benzoic acid is consumed in food — that is used as a preservative—a certain amount of that is consumed in good ——

The Court: That, I think is foreign to the inquiry ——

Mr. Miller: My point, your Honor ——

The Court: (Interrupting) I know your point, or at least I think I know it; I think the question of whether benzoic acids or would be in food ——

Mr. Miller: (Interrupting) Trying to show it is a food ——

The Court: (Interrupting.) I overrule it — I think it is too broad.

Mr. Miller: Very well.

BY MR. MILLER:

Q. How do you directly apply heat or cold water to a muscle, doctor?

A. You cut out the muscle and apply it directly to it.

Q. And so, when you were referring in your book to the application of caffeine to the muscle, and to the effect such as would result from the application of hot or cold water, you meant by direct application?

A. Yes, certainly.

Q. And of course applying hot or cold water in that way would be very injurious.

A. Certainly.

Q. Oh, yes; you did not read the entire sentence in the Zenetz case, did you, Doctor, that was passed to you on redirect examination?

A. The Zenetz case, one of them, — I think I read it in that one case.

Q. I mean in this particular Zenetz case. It is a fact you did not read the entire sentence?

A. I thought I read the entire sentence, as far as I read it.

Q. Kindly take it and commence where you were reading and see if I give you a literal translation in English.

A. All right. (Looking at book.)

Q. (Reading:) At the autopsy, which was done the next day, they found the heart contracted like a fist, and it could be cut with difficulty with a knife; in a word, the heart was spastically contracted, which it is said to be in man in cases of caffeine poisoning."

A. Yes.

Q. That is the entire sentence?

A. Yes, sir.

(Witness excused.)

L. SCHAEFFER,

the next witness called on behalf of the Claimant, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION,
BY MR SIZER:

Q. Doctor, are you a member, or rather proprietor of the Schaeffer Alkaloid Works of Maywood, New Jersey?

A. I am its president.

Q. Your deposition was taken in this case several months ago?

A. Yes, sir.

Q. Last October?

A. Yes.

Q. Now, Doctor, do you make Merchandise No. 5 for the Coca-Cola Co.?

A. Yes, sir.

Q. From what substance do you make that Merchandise No. 5?

A. Of the Coca leaf and the Cola nut, and of dilute alcohol sir.

Q. What do you use the alcohol for, what is the purpose of putting in the alcohol?

A. To extract from the bodies mentioned the extractive matter.

Q. Do you use anything else in that compound except the extracts from the coca leaves and cola nuts and dilute alcohol?

A. No, I do not use anything to speak of, or essentially.

Q. Now just state the process, Dr. Schaeffer, by which you manufacture this Merchandise No. 5?

A. The process consists of two parts. The first part is to decocanize the coca leaf, the second part is to use the decocanized coca leaf and cola nut, both of which are in powdered form, to make the infusion, that is, the same extract made by percolation with dilute alcohol.

Q. Now, I want you to go on and give the details of the process, doctor, by which you get this extract from the coca leaves and cola nuts?

A. As stated, the first part of the process consists in eliminating the cocaine and also the other alkaloids from the coca leaf, from the coca leaves, which is not used in making the extract. This is done in the following way: The coca leaf is powdered in a disintegrator, that is a mill, making a great number of revolutions to reduce the coca leaf to powder. The powdered coca is then mixed with alkaline solution, that is with water containing small quantities of an alkali to make coca leaf slightly alkaline. This is done in a mixer which has been especially devised in my works for this purpose. This is carried out by hydro-carbon — this is an oil and this oil could not easily penetrate into the powder of coca leaf if the coca leaf would be made too moist; consequently, the volume of water has to be as small as possible to permeate the oil used later on in extraction to penetrate fully the powdered leaf. It is therefore, the water, to which alkaline is added, and which solution is sprayed into the powdered coca leaf in the rolling mill I mentioned is the minimum amount, must be the minimum amount of water — needed to liberate the cocaine and other alkaloids which are in the form of certain salts in the coca leaf from the salt combination. The rolling mill I mean the force of it is used to force the alkaline solution with great power into the powdered coca.

BY MR. SIZER:

Q. Is that a rolling mill?

A. Yes, sir, that is the mill consisting of cast iron rollers, having a great weight. These rollers exercise such a pressure to permeate the coca leaf uniformly with the alkaline solution. The coca thus alkalized is then filled into big percolators of cylindrical shape. The same having

a man hole on top and another man hole in front near the bottom. Now the percolators are perforated, iron bottoms, which are covered with cloth. The alkalized coca is filled into these cylinders and the cylinders are closed. Thereupon the hydro-carbon is run by gravity from a tank which stands — a collecting tank — which stands about four feet higher and is percolated through the coca. The object of this process is to extract from the coca, cocaine, and asociated alkaloids, which are in the coca leaf. In order to accomplish this thoroughly, the amount of about eight times the weight of the coca is used for said hydro-carbon.

Q. Is that the end of the process?

A. Not quite, — not quite. This extraction process takes several hours. The oil solution coming from the percolator then running into the big copper cylinder — in the same this hydro-corbon alkaloid solution is shaken; this is a solution of sulphuric acid; the latter takes the alkaloids out from the oils and renders the oils capable of being used again in the same process, after completion of extraction of the alkaloid extraction process, hydro-carbon staying in the percolator, is run off into a tank below the percolator. There is, however a certain quantity of the hydro-carbon adhearing to the coca leaf in the percolator. To remove the same a current of dry steam or about sixty pounds pressure is introduced into the percolator. The steam carries the remaining portions of the hydro-carbon off, so that after four hours all of the hydro-carbon has been carried away from the coca leaf. We have now in the percolator the decocanized coca which is subsequently used to make the extract No. 5.

The second part of the process consists in putting the decocanized coca which is taken out from the percolator by the front man hole together with powdered coca nut into large wooden tanks or into a large wooden tank, prior to the introduction of the coca and cola quantity of dilute alcohol has been filled into the tank. The proportions which are used in the process are as follows: 380 lbs. of coca leaf, 125 lbs. of cola nuts and 900 gallons of dilute alcohol of about twenty per cent strength is taken. The extract obtained is pasteurized in another tank by heating same to a temperature of about seven degrees centigrade. The pasteurized extract is then filled in wooden bbls. being Merchandise No. 5. I wish to make a few remarks regarding this method ——

Q. Go on.

A. This process takes all bodies of extractive matter— say brings instead of takes, bodies or extractive matter

which can be taken out from the coca leaf and from the cola nut into Merchandise No. 5 with the exception of alkaloids of coca leaf. The hydro-carbon which is used in extraction of cocaine and associate alkaloids from the coca leaf does not take any of the water extract substances out from the coca leaf, the same remaining in the leaf.

The Court: Water or volatile?

The Witness: I think it is right what I gave.

The Court: Water extract substances?

The Witness: Yes, sir; to explain it a little better you might say that there is a large percentage or matter in the coca leaf which can be taken out from the coca leaf by making a percolation with water or dilute alcohol. To make a water extract or an extract with dilute alcohol from the coca leaf means to treat the leaf with water or dilute alcohol so that this water or alcohol soluble substances are taken out. The amount or quantity of extractive matter in coca compared with the quantity of alkaloid in coca is considerably larger, perhaps twenty times as large as the latter.

The Court: You mean in bulk?

The Witness: In weight?

The Witness: Yes. In other words, the extractive of coca leaf which is done in the first part of above described manufacturing process takes only a very small quantity of substances contained in the coca leaf out, about one per cent only, whilst in the second part of the process, that is the proportion of the extract with dilute alcohol quantity of about twenty times as much is taken out from the coca leaf. This is essentially the process which I use in my factory to manufacture Merchandise No. 5.

(Thereupon at 12 o'clock M. Court took a recess until 12:20 p. m.)

AFTER RECESS.

Court met pursuant to recess at 12:30 p. m.

The Court: As I am about ten minutes late in getting back we will hold until 2:10.

L. SCHAEFFER

resumed the stand for further examination.

BY MR. SIZER:

Q. Now, Doctor, is this, the process you have described, the same process by which you have been manufacturing this Merchandise No. 5 since you have been making it for the Coca-Cola Co.?

A. Yes, sir.

Q. And about how long has that been?

A. About eight years.

Q. Are you yourself the inventor of that process?

A. Practically yes.

Q. Do you use machinery especially devised by yourself for the purpose of making this extract?

A. All of the machinery is practically of my own invention.

Q. I want to ask you, Doctor Schaeffer, have you prepared a statement from statistics in the Bureau of Statistics at Washington, a statement showing the total consumption of caffeine in beverages in the United States, for the year 1909?

A. Yes, I have.

Q. Now, will you please file a copy of that compilation that you have made?

Mr. Miller: We except to that, first, because it is not the best evidence, and second because it is not competent.

Mr. Sizer: So far as the best evidence is concerned, the Court knows as a matter of law all about everything that is in this bureau of statistics. (Reading.) "Courts know the facts generally known to have been established by statistics in much the same way and for much the same reason that they know the facts set forth in the almanic. The Court cannot verify the facts; but where statistics are official, prepared by public officers acting under provision of law, the duty of the Court to know the law and recognize the existence of acts done under it stimulates and endorses the Court's knowledge of the facts established by such statistics, in which the community shares.

The Court: Is that the rule; I have never seen that question passed on.

Mr. Sizer: Yes, and "While a witness cannot testify to the existence of a fact of which he has no personal knowledge, he is not necessarily precluded from stating what certain unsworn statements show, an, assuming them to be correct, what they prove."

Now a note to that text is as follows: (Reading.) "Where evidence states the result of voluminous facts, or of an inspection of books and papers which cannot conveniently take place in Court, the objection of hearsay does apply.

The Court: If you have the original pamphlets you can introduce those statistics so counsel may have an opportunity to discredit the statement.

The Witness: The statistical figures which were given to me by the Bureau of Statistics in Washington I calculated the quantities of caffeine that they represent ——

Mr. Miller: (Interrupting.) I object to that.

The Court: Unless it appeared in some public document the witness' opinion wouldn't be competent ——

Mr. Sizer: Let me see what you have Doctor?

The Witness: These are official ——

The Court: (Interrupting.) I don't think it is very material, the Court and jury judicially know the immense consumption of beverages containing caffeine.

Mr. Sizer: Your Honor judicially knows, and inasmuch as your Honor does judicially know it, I submit we can put a witness on the stand and make a compilation from those figures.

The Court: If they are published in any government work he may make that compilation but I don't think it proper to permit him to make it from figures given him by an individual at all.

Mr. Miller: They use, they admit, caffeine, extensively in coca cola, and we are not disputing that, but the point of my objection is I have no opportunity ——

The Court: (Interrupting.) I have ruled that it was not the proper way.

Mr. Sizer: I think your Honor we have a number of these tables.

The Court: You may offer those, and they may be used to make compilations for the convenience of the Court and jury ——

Mr. Sizer: All right.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. As popularly used, are coca and coca leaves synonomous?

A. Yes, sir; Coca is a preparation of coca leaves and we use the word coca instead of coca leaves.

Q. As popularly used, coca and coca leaf is synonomous?

A. Yes, sir.

The Court: Has he not been examined as to that in his deposition?

Mr. Miller: I didn't understand that he had.

Now, your Honor excluded certain things because we had not proven his process of manufacture.

The Court: That is all admitted now. There may have been some other exception, but as to the objection made on the ground that the process was not stated, in view of the fact that the witness has now stated the process, that evidence is admitted, and that same ruling applies to the statements of the two experts yesterday.

Mr. Sizer: Dr. Mallet and Dr. Caspari, I understand

that their testimony is now admitted.

The Court: The things that were excluded in their testimony because the specific process was not stated, are now admitted, but so far as that was the only objection made. Where other objections were made and sustained, those still stand.

Mr. Miller: But we may have the right to recall them for further cross-examination.

The Court: You may.

BY MR. MILLER:

Q. Is the caffeine which you supplied to the Coca-Cola Company, made from tea?

Mr. Sizer: That has all been covered by the deposition.

Mr. Miller: I think not.

Mr. Sizer: He said it was made from sifted tea leaves.

The Court: What is the materiality of that. Does the Government say there is any difference between the caffeine effect when produced from tea than from other substances?

Mr. Miller: We think not, but adversary counsel seem to think so.

The Court: I think not.

BY MR. MILLER:

Q. Do you mean that caffeine from tea and coffee is the same.

Mr. Sizer: Yes, or from the cola nut.

Mr. Miller: If it be the same thing, whether from the coca leaf or cola nut ——

Mr. Sizer. (Interrupting.) The same thing.

The Court: Everybody agrees that the effect of caffeine, when isolated as caffeine, is the same, no matter what it is derived from.

Mr. Miller: Chemically the same, but the point I make is they may content, and I apprehend, do contend, because there is a percentage of caffeine in the extract of cola, that if the caffeine added in the works at Atlanta comes from cola, also, it is not an added ingredient.

The Court: That may be a matter of argument, but you all agree that the effect of caffeine is the same, no matter whence the caffeine is derived.

Mr. Miller: I wish to show by this witness that a portion of the caffeine which he shipped to this manufacturing establishment at Atlanta, is not extracted from cola but from tea.

The Court: You have already shown that.

Mr. Miller: It is conceded that I have shown that?

Mr. Sizer: Some from the leaves and some from coffee, that was all read yesterday.

Mr. Miller: Then I shall not pursue that any further.

BY MR. MILLER:

Q. Do you know anything respecting cocaine, a substance found in the coca or cola?

A. I cannot recollect. I have given in my deposition, October 19th, I think ——

Q. But I ask you if you have discovered anything respecting that since you gave that deposition?

A. I have no other facts.

Q. You have made no discoveries in that length of time. Now, have you since that time ever made any attempt to isolate any of the other so-called extractive bodies and substances from the leaf except the cocaine?

A. No, sir.

Q. Therefore you do not know what enters into Merchandise No. 5 as it is prepared and sent to Atlanta?

A. No, sir.

Q. As an isolated substance?

A. No, sir.

Q. You know what a poison is?

A. Yes, sir; in a general meaning.

Q. Now, in this process of putting the coca through, what kind of hydro-carbon do you use?

A. I beg to ask whether this is materially in connection with this case, to give the hydro-carbon which I use. As the hydro-carbon is eliminated before the coca leaf is put into the extraction with dilute alcohol, how is it that important?

The Court: Of course, I take it that no one wished to injuriously affect the Doctor's process, or its value to him, so far as extracting cocaine. Unless there is some reason to believe that the hydro-carbon may make a difference in the result, there is no necessity to press this question. And if so, it may be well to let the government chemist to know what it is, and if they may do so.

Mr. Miller: Yesterday, we offered to take Dr. Schaeffer's statement about it privately under oath, and counsel preferred to give it publicly. Our chemists say there are numerous hydro-carbons that the process which he is describing of bringing this leaf in contact with the hydro-carbons, will give varying results, depending on the hydro-carbon. We are prepared to demonstrate that, and if I cannot ask that, I cannot go further. I am perfectly willing to do that in private. I offered yesterday to do it in private.

The Court: That is not strictly legal, but if counsel for the Government are willing to do that, I will allow it to be done.

Mr. Miller: I am quite willing ——

The Court: I understand your position.

Mr. Miller: I have here Wigmore in which he says in this day and time when parties can protect themselves by copyright and patent, that they are not to be allowed to refuse to state those things.

The Court: I understand.

Mr. Sizer: I would just as soon have them ask the witness on the stand.

The Court: Would you prefer to give that information privately or on the stand, Doctor? If it is given privately and the Government chemists find it is material, it would become known, but if the witness states he wants it done privately, I will allow it.

The Witness: I am willing, if the Court decides for me to give it privately, to do it.

The Court: You prefer that?

The Witness: Yes, sir.

The Court: That may be done. Now, it is understood that if the information given becomes material, they will use it in this case, but unless it is material, it will not be used.

Mr. Miller: I do not want to inflict unnecessary delay on the Court or counsel, but if I postpone that, I might as weil postpone all and take this matter with a stenographer privately and proceed with some other witness now.

The Court: That may be done. I want to make the position of the Court clear in that matter. Of course, as a matter of right, so far as is necessary for this case, the Court will insist upon publicity, but if it is not material this witness's business and manufacture of cocaine has nothing to do with this law suit, it should be kept secret.

The witness was here withdrawn from the stand.

JOHN M. McCANDLASS,

the next witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Give your full name.

A. John M. McCandlass.

Q. Where do you live?

A. Atlanta.

Q. What is your profession?
A. Analytical chemist.
Q. How long have you been an analytical chemist?
A. Some twenty-five years.
Q. Where were you educated?
A. Partly in South Carolina, partly in Georgia, and partly in New York.
Q. Have you ever had any official position with the State of Georgia?
A. Yes, sir; I was state chemist of Georgia for about ten years.
Q. Have you made any analysis, and if so, where, and how many cups of coffee to ascertain the contents thereof, and if so, what were the contents?
A. Yes, sir; I analyzed a number of cups of coffee I bought in restaurants in the city of Atlanta, this work being done some two months since.
Mr. Miller: I want to interpose the same objection to that.
The Court: Yes, the same objection and exception will be understood to be preserved all the way through. Now, Mr. McCandlass, before you bring that out, state when you went to get the samples what you asked for and what you got.
The Witness: I went into the restaurant and sat down at a table and called for a cup of coffee, and when they brought me that cup of coffee, I took out a flask from a basket, I had previously pasted a label on the flask, and I took out a separatory funnel and poured the coffee from the cup through the funnel into the flask and stoppered it up and labeled it.
The Court: Did you ask for coffee with milk or straight coffee?
The Witness: I asked for a cup of coffee, with milk, and they brought me the coffee with milk, and I discarded the milk and used the cup of coffee.

The Court: Was it a full cup of coffee, or one that would accomadate the milk that was brought?
The Witness: It was a cup of coffee that they served to their regular customers. In one or two instances they had put the milk in it before bringing it, and I asked them to take it back and told them I wanted it for a specific purpose. I did that because I found that milk interfered with the process of analysis, and I did not want the milk in it.

BY MR. HIRSCH:
Q. State the result of your analysis.

A. I went into about twenty-five restaurants and soda fountains in the city of Atlanta. I have them here by number.

No. 1 contained 165 cubic centimeters and the caffeine I found in that volume was 132.6 milligrams, or 2.4 grains.

Q. Before you proceed, I will hand you this memorandum to refresh your memory as to where those places were.

A. No. 1 Duran's Restaurant in East Alabama Street.

No. 2, I found 1.52 grains of caffeine. That came from Byrd's restaurant, West Alabama Street.

No. 3, 1.69 grains of caffeine, Child,s Restaurant, 85 Broad street.

No. 4, I found one grain of caffeine; Verner Restaurant on Broad street.

No. 5, two grains of caffeine; that came from Folsom's Restaurant on Marietta street.

No. 6, 1.82 grains; the Savannah Lunch Room, West Alabama street.

No. 7, I found 2.04 grains of caffeine, which came from Paul Smith's place on Broad street.

No. 8, I found only .64 of a grain, which came from the Silver Moon Lunch Room, Marietta street.

No. 9, 2.85 grains. This came from Jacob's soda fountain.

No. 10, 2.59 grains, and this came from the Aragon Hotel.

No. 11, I found 3.81 grains. This came from the Piedmont Hotel, and was a pot of coffee, containing about two cups.

No. 12, I found .99 grains. This came from the Kimball House.

No. 13, I found 1.82 grains. This came from the Baltimore Dairy Lunch Room.

No. 14, I found 1.92 grains of caffeine, and it came from Candler's Restaurant, the restaurant in the bottom of the Candler building.

No. 15, I found 1.81 grains of caffeine, gotten from the Peachtree Cafe.

No. 16, I found 2.45 grains of caffeine, and it was gotten from the Baltimore Dairy Lunch on Peachtree street.

No. 17, I found 1.51 grains, and it was from the Eagle Cafe on Marietta street.

No. 18, I found 1.45 grains of caffeine, from the Arcade Lunch Room on Peachtree.

No 19, 3.32 grains of caffeine; and this was from Duran's Restaurant on Edgewood aveneu.

No. 20, I found 2.12 grains of caffeine, and it was from the Manhattan Restaurant on Marietta street.

No. 21, I found 2.23 grains of caffeine from Verner's Restaurant on Peachtree.

No. 22, 1.43 grains of caffeine, and was from the German Cafe on Pryor street.

No. 23, I found 1.51 grains of caffeine, and it was from Elkin & Watson's Drug Store.

No. 24, .86 grains of caffeine, from Louis' Cafe next to the Chamber of Commerce.

No. 25, 1.54 grains of caffeine, from the American Cafe on Hunter street near the Court House.

Q. Did you make a calculation as to the average caffeine, content?

A. Yes, sir; the average was 1.92 grains.

Q. Did you make any other analysis of any drinks sold at soda fountains?

Yes, sir; I bought some chocolate syrup, such as they put into a glass of chocolate soda, and my results on those were—

Mr. Miller: I object to that. That is immaterial, we think.

Mr. Hirsch: We will withdraw that; no, if your Honor please, how about that—

The Court: I overrule the objection.

BY MR. HIRSCH:

Q. Proceed.

A. As to those samples of chocolate which I got at the soda fountains, I simply asked for the usual amount of syrup they would put into a glass of soda, and in every instance they measured it by the eye and gave it to me, and I transfered it to a bottle and carried it to the laboratory.

Mr. Miller: Without he is prepared to state that is the average, we think that is incompetent. He comes and asks me what I ordinarily do and I tell him, and we think that is removed from primary evidence and is not competent.

The Court: The objection is overruled. Of course, the matter is dependant on the number of samples. Just one case might not be worth much, but a number, the weight of the evidence is determined by that.

The Witness: I proceeded to analyze the samples of syrup and I measured them.

BY MR. HIRSCH:

Q. How many of them were there?

A. Six, I measured them before beginning with the analysis and then in each case I diluted them and proceeded to extract the alkaloid, and in No. 1, the volume

was 31 cubic centimeters per ounce.

Q. Where was that?

A. That was from Elkin & Watson's drug store. In that I found 11 milligrams of combined alkaloid, theobromine and caffeine.

Q. Reduce that to grains for us.

A. That is equivalent to point .17 of a grain.

In No. 2, 34 cubic centimeters, and in that I found .18 grains.

The Court: You did not separate the caffeine from the theobromine?

The Witness: No, sir; they were combined. I only separated in the last case.

The Court: Then I shall exclude that, combined alkaloids, caffeine and theobromine, and I will not allow Just one case.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. If I understood you correctly, in all cases you called for coffee and obtained free from any addition except possibly in one or two cases milk had been added and you discarded that and got coffee.

A. Got pure coffee without any milk or sugar.

Q. In that computation you made—this is, of course, reserving our exception if I may be permitted to cross-examine.

The Court: You may do that; that is understood.

BY MR. MILLER:

Q. In that computation you made, to ascertain the caffeine, content, how many cups did you say this pot held?

A. There was one pot at the Piedmont Hotel and the volume of that was three hundred cubic centimeters.

Q. How many is reckoned per cup, did you divide that into cups?

A. It was brought to me in a pot and I poured it into the flask I brought with me.

Q. You just took away the entire contents?

A. The entire contents of the pot?

Q. How many cups?

A. If it had been divided into cups, I would think two average cups.

Q. And that was an ordinary sized pot of coffee?

A. Ordinary sized pot of coffee. I paid fifteen cents for that pot, and ordinarily they only charged me five cents a cup.

Q. Now, about May 2, 1906, you were serving as state chemist of the state of Georgia?

A. Yes, sir.

Q. On or about that date, at the instance of the Coca-Cola Company, you wrote to the New York Observer, a publication, at the instance of the Coca-Cola Company, some of your observations with respect to Coca-Cola, did you not?

A. I received a letter from the New York Observer about that date, requesting me to send them a copy of the analysis, if I had made an analysis of Coca-Cola at any previous date, and I had analyzed Coca-Cola about two years previously.

Q. In your reply you said, "The worst thing I find in Coca-Cola is Caffeine, which is the active principle of tea and coffee." That is your language literally.

A. I think it is. That is about what I should have written.

Q. Did you purify the caffeine that you extracted from the coffee that you took in making these various analysis?

A. I use Paul & Conleys process. Those are English chemists who have done a great deal of work on that line.

Q. Can you give it to us, what is it?

A. Yes, sir; practically.

Q. Give it.

A. I took a measured quantity of coffee and shook it up with chloroform.

Q. How much did you take?

A. Fifty cubic centimeters of coffee and shook that up with a measured volume of chloroform. I used a little less chloroform than I did the coffee. I used about forty cubic centimeters of chloroform and I allowed the two mixtures to separate. I first added to the coffee before shaking, two drops of very dilute sulphuric acid. That is a part of the process. After the chloroform separated from the coffee I drew it off with a separatory funnel.

Q. In that separating process, what becomes of the sulphuric acid?

A. That remained in the aqueous liquid.

Q. How do you know that?

A. Sulphuric acid has a greater affinity for water and does not dissolve so well in ether.

Q. You mean to say when you dropped this into the mixture it did not have any affinity for that mixture and remained in the coffee?

A. It remained in the coffee infusion.

Q. Did it form a combination with the other compon-

ents or not?

A. It probably may have combined with the alkaloid caffeine but the caffeine is an exceedingly weak base and can be extracted even from its acid solution by agitation with chloroform.

Q. But did you know what became of the sulphuric acid when you dropped it in there?

A. It dissolved in the aqueous liquid.

Q. Then instead of saying it may have done so, you admit it did so?

A. Yes, sir; it dissolved in the aqueous liquid.

Q. It became a part of the mixture?

A. A part of the coffee infusion.

Q. Go on.

A. I then repeated the extraction with chloroform five times, I think it was.

Q. Did you drop the sulphuric acid?

A. No, sir; the original drop or two of weak acid was suffiicient.

Q. Now, you have gotten down to a drop or two. You said two or three at first.

A. It may have been. I didn't count them, but it was two or three drops probably of weak sulphuric acid.

Q. What do you mean by weak sulphuric acid?

A. About ten cubic centimeters in one hundred cubic centimeters, a ten per cent solution.

Q. Go on.

A. After separating all the chloroform with which I had shaken up the infusion, separating it by means of a separatory funnel, there was some cloudiness and some clear in the chloroform solution, and this I allowed to run into a very dilute solution of caustic soda, drop by drop, and as it passed through the column of dilute caustic soda it clarified and all the color in it was taken out and when it settled below the caustic soda it was perfectly white and clear and transparent. I then tapped off that chloroform solution into a flask and distilled the chloroform away from the substance which it held in solution. After the chloroform was all distilled off I put the flask into a water bath, heated to a boiling temperature, and allowed it to remain there for about two hours. I then took that flask out and weighed it and deducted the original weight of the flask from the weight I found, and that weight consisted of caffeine plus a little impurity, a little brownish waxy residue which still remained in that flask. Therefore, not considering that caffeine to be absolutely pure, I dissolved the residue in concentrated sulphuric acid and proceeded to determine the amount of

nitrogen by Kjeldahl's method.

Q. What is that Kjeldahl method?

A. That is the method which I am using in my daily work as a chemist. I do a great deal of work in the analysis of chemical fertilizers and tests for nitrogen in all sorts of substances,—cottonseed meal, fertilizers, etc.

Q. What is that method.

A. It consists in treating the substance with sulphuric acid tógether with the addition of potassium sulphate, and the sulphuric acid will destroy the organic matter. For instance, if you had sugar mixed up with any other organic substance, the sulphuric acid would destroy it. It oxydizes the sugar and converts it into carbonic acid, and it passes off; but if there were nitrogen present, as there is in caffeine, the sulphuric acid would convert it into ammonia and form sulphate of ammonia. After the oxydization process is complete, the solution is transferred to a glass flask and water and caustic soda is added and the mixture is distilled. The caustic soda converts the sulphate of ammonia in the sulphuric acid into ammonia, that is, it liberates it from the compound with sulphuric acid and by boiling you drive the ammonia out of the solution and it passes over into a resevoir containing a dilute solution of acid of known strength. The ammonia neutralizes a certain portion of that dilute acid of known strength and by a process of titration we can estimate how much acid was neutralized by the ammonia, and from that we can calculate the percentage of nitrogen in it originally.

Q. So that the result of your conclusion was based in part on estimation and in part on this very changing process?

A. That last process I described was simply a check on the accuracy of my first work.

Q. But that was an estimation?

A. And I made that estimation for the purpose of checking the accuracy of the first work.

Q. Is it not possible to weigh and ascertain definitely about those things?

A. Yes, sir, we did that in the first instances, but those processes by which we extract the caffeine from organic bodies and liquids are apt to carry a little more of the content down with them. For instance, caffeine occurs in white silky needles, and I noticed in the residue which I weighed that the caffeine was recognizable by that test; that is, that there were white silky needles, but there was mixed with the white silky needles a very little brownish matter when I turned the flask up to the light. On the

table it looked perfectly white, but up to the light it looked brownish, and that was not caffeine I knew.

Q. You knew it was nitrogen?

A. No, sir, I didn't know it was nitrogen.

Q. What did you think it was?

A. I thought it was a little waxy matter.

Q. Did you submit it to any test to ascertain whether it was nitrogen?

A. That is what I made the Kjeldahl determination for, to see whether it was nitrogen.

Q. I am talking about the brown matter.

A. The brown matter was mixed with the caffeine.

Q. But do you know what it was?

A. I do not know what the brown matter was further than what my supposition was that it was a waxy resinous body.

Q. If you don't know what it was, do you know whether it contained nitrogen or not?

A. No, sir.

Q. Then, after you put it through the process, you estimated the amount of caffeine there was?

A. Yes, sir; in each case, and I found a little less caffeine than I had weighed up, and therefore I judged that the caffeine always contained the same percentage of nitrogen, about 29 per cent.—and therefore I judged that the brownish matter I had weighed up along with the caffeine did not contain any nitrogen at all, because I got less nitrogen than I would have gotten or had obtained as much nitrogen as the caffeine.

Q. You mean to say when a chloroform solution of caffeine or other substances is allowed to run or drip through caustic soda, that any caffeine will be taken out by the process of percolation?

A. I found that process removed the impurities. It was made to get rid of the impurities and get rid of everything but pure caffeine, and I knew from the coloration that the caustic soda had taken out some of the impurities. That is the method pursued by chemists with tea and coffee.

Q. But that don't answer the question as to whether or not you knew that that percolating process did not either impregnate the residue which went through with part of the soda solution, or do you know to the contrary that part of the caffeine was not lost in the soda solution, or are you prepared to state positively as to either of those matters.

A. I am prepared to state positively, because before beginning the work, I tested the process with some chem-

ically pure caffeine which I had purchased at a drug store and weighed out a definite quantity of alkaloid and dissolved it in distilled water. To this distilled water I added a few drops of dilute sulphuric acid, just as I did with the coffee solution and I went through the same process and I also added a little caramel and distilled water to the solution in order to put some organic matter, and then after shaking up with chloroform just as I did with the coffee infusion, I dropped it through the caustic soda solution and obtained identically the original caffeine that I started with, plus a slight loss. I lost a little. I have not my figures here but I took about a grain of caffeine to start with and I got very slightly less than a grain when I weighed up my residue.

Q. How did you know that was caffeine you started with?

A. I tested it by the usual tests for caffeine, evaporation with hydrochloric acid and the crystals of pure potassium chlorate, evaporating that at a temperature of the water bath, in working over it a dish from which a solution of ammonia had recently been poured.

Q. That is the only test you gave?

A. That is the only test I made.

Q. To see whether or not it was caffeine that you started with?

A. Yes, sir; that is the usual test given for caffeine.

Q. Do you consume coffee yourself?

A. No, sir.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. The letter you wrote to the New York Observer, did you write that at the instance of the Coca-Cola company?

A. No, sir; I did not.

J. A. WESENER,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. SIZER:

Q. Where do you live?

A. I live in Chicago.

Q. What is your occupation?

A. I am a consulting and physiological chemist.

Q. I will ask you to state your educational qualifications and experience as a chemist.

A. I took my course in chemistry at the Michigan Agricultural College and the University of Michigan, and

graduated from the latter institution in 1888, receiving a degree of Pharmaceutical chemist. I entered the College of Physicians and Surgeons in 1891, which later became the Medical Department of the University of Illinois, and graduated from this institution in 1894, receiving the degree of M. D. I held the chair of Chemistry in the Medical Department of the University of Illinois for about twelve years. I am president of the Columbus Laboratory, which is an institution located in the city of Chicago and is devoted to research and analytical examination. The Medical department takes up Pathology, Bacteriology, Physiological Chemistry. We have a Food Department which goes into the study of foods, and we also make a study of wheats and other cereal products. In the Medical Department I receive specimens from physicians all over the United States for examination and for diagnosis. In the Food Department we have made a great many examinations for several of the Experiment Stations in this country and also in Canada. We also made one special research for the Secretary of Agriculture on durum wheat.

Q. Have you ever made any analysis of Coca-Cola syrup?

A. I have.

Q. How many?

A. Three or four, I should say.

Q. Do you remember the dates on which the analyses were made?

A. The first examination I made of Coca-Cola syrup was on April 15, 1907.

Q. For what purpose was that made?

A. For the amount of caffeine, and to see whether it contained cocaine.

Q. At whose instance was it that you made that examination?

A. I made that for Mr. Harper, an attorney in the City of Chicago.

Q. What did you find to be the percentage of caffeine on that analysis?

A. The syrup contained two-tenths of one per cent. of caffeine.

Q. About how much to the ounce?

A. That would be equal to about 1.21 grains to the ounce.

Q. You say you have made several other analyses; did the amount of caffeine you found on subsequent analyses correspond with the amount you found on the first one?

A. I made an analysis of fountain syrup which contained .21 of one per cent of caffeine, and of the bottlers'

syrup which contained .19 of one per cent.

Q. And the grains per ounce would be how much?

A. The first would be equal to about 1.21 grains and the last about equal to about 1.1 grains.

Q. Did you state where you got the first sample?

A. The one I analyzed in 1907 I went over to Fuller & Fuller's wholesale drug house in the City of Chicago and bought an original package of Coca-Cola syrup.

Q. Where did you get the sample you analyzed later?

A. I received two samples. May I consult my memoranda?

Q. Yes.

A. November 27, 1909, I received a bottle of Coca-Cola syrup, fountain syrup, from W. H. Foster, Chattanooga, Tennessee. This was sent by the Southern Express Company from Chattanooga, Tennessee.

On December 4, 1909, I received a bottle of Coca-Cola syrup called bottlers' syrup from J. F. Johnson from Chattanooga. This was also sent by the Southern Express Company.

Q. Those are the two samples you analyzed later on?

A. They are.

Q. Does chocolate contain caffeine?

A. It does.

Q. What percentage?

A. From .14 in the coca nibs from which the chocolate is made—from .14 of one per cent to .75 of one per cent.

Q. What else does chocolate contain, what other alkaloid?

A. The other alkaloid is known as theobromine.

Q. What is the proportion of theobromine?

A. Theobromine in the coca nibs varies from about one per cent. to 1.38.

Q. How are theobromine and caffeine allied with respect to their chemical composition and their physiological action?

A. Theobromine and caffeine chemically are very closely allied. Theobromine is a dimethylxanthine and caffeine is a trimethylxanthine. The caffeine acts upon the muscles and also the central nervous system. Theobromine does not act very much on the central nervous system but is a much more powerful muscle stimulant than caffeine.

Q. As a muscular stimulant?

A. Yes, sir; theobromine is the more powerful.

Q. Are both to a certain extent nerve stimulants?

A. Yes, sir.

Q. The caffeine is the most powerful nerve stimulant?
A. So I understand it.
Mr. Miller: I would like for you to confine yourself to scientific reading and research or to personal experience, one or the other. I object to that answer.

BY MR. SIZER:

Q. Do you know that to be so from your own ex periments or from your own research as a chemist?
A. I know that in part from my research work and in part from my reading.
Q. What is xanthine? I wish you would explain what xanthine is and what part it plays in the body.
A. Xanthine is found in the muscles of the body; that is, the muscular tissue, more frequently than in the cell, although it is sometimes found in traces in the cell. It is the end product, so to speak, not wholly the end product but I use that tentatively—it is the end product of the destruction of the nuclein as found in all the nucleus cells. Being the end product it is virtually the ash of the unclein metabolism. It is a powerful stimulant of the muscle and part of it may be burned up into uric acid.
Q. When caffeine is taken in the body through the mouth, what becomes of it?
A. The methyl groups in the caffeine are removed, it may be entirely in some cases and then again only one or two remain. Xanthine, however, to a certain extent is one of the end products of the caffeine in the body and that xanthine is identical with the xanthine which is derived from the destruction of the nuclein in the body.
Q. Now, is this breaking down process by which the methyl groups are split off from the caffeine, what is called oxydization?
A. I do not believe I would hardly call that oxydization. I think I would call that more a hydrolosis. It removes some of the methyl groups. The methyl groups may oxydize after being split from the caffeine group.
Q. If those methyl groups oxidize and split off in the body, does that produce energy?
Mr. Miller: I object. I do not think this witness is qualified as a physiological chemist.
The Court: Ask him about that.

BY MR. SIZER:

Q. State whether your training and research have qualified you to testify as a physiological chemist.
Mr. Miller: That is another conclusion asked for and I object to it.

The Court: I sustain the objection.

BY MR. SIZER:

Q. State what training and education and experience as a physiological chemist you have had.

A. I have been at that subject something like ten or twenty years. I have taught physiological chemistry in the Medical Department of the University of Illinois for ten or fifteen years. I have examined thousands of urines and thousands of stomachs and made a special research on the secretion of hydrochloric acid in the stomach; also made several researches into substances found in the urine and whether they rise from the urinary tract and many other—

The Court: You may proceed.

Mr. Sizer: Now you can read that question.

(The question was read as follows: "If those methyl groups oxydize and split off in the body, does that produce energy?")

A. It certainly does in a chemical sense.

BY MR. SIZER:

Q. What are purin bases?

A. The purin bases are also the xanthine bases. They are synonymous. Purin bodies are composed of carbon, hydrogen and nitrogen, and its chemical formula is very closely allied to the xanthine formula, and so when you speak of purin bases you mean the xanthine, or if you speak of the xanthine bases you mean purin bases.

Q. Are those purin and xanthine bodies taken into the body in a number of different foods?

A. They certainly are.

Q. Give instances.

A. They are found in the meats, sweetbreads and very richly in fish eggs, and in the cells of vegetable food, in the germ of growing plants.

Q. Do those purin bases play a part and if so what part, if you know, in the processes that go on in the body of metabolism, as it is called?

A. The purin bases are assimilated into the body. They are formed from the food taken into the body and also from the destruction of the cell that is continually taking place in the body. They are as far as I know the natural stimulants of the human body.

Q. Is that destruction of cell that you speak of a part of the regular function of the body?

A. It is, because it is constantly going on, a wear and tear and breaking down of regeneration. That is life.

Q. What is the sum of these processes called, the break-

ing down of the cells and the building up of the tissues from food — what is the general disignation of it?

A. First, hydrolosis, the digestion which is the breaking down and then building up, which is the breaking down into simpler compounds and then building those bodies into more complex compounds, and in such a manner as that they can be utilized by the body as food.

Q. What is metabolism?

A. Metabolism goes into the chemical changes brought about by what we sometimes speak of as the functions in the body.

Q. Is caffeine a poison in any sense, and if in any, what, and state your definition of poison.

A. The word poison — it is simply a question of definition.

Mr. Miller: Now, your Honor, does that mean ——

A. I have not finished my answer yet.

Mr. Miller: I want to interpose an objection unless he qualifies as a toxicologist and physician.

BY MR. SIZER:

Q. I thought that was covered by his former answer — but, state the extent of your education, qualifications and experiences as a toxicologist and physician. Although I do not know that that "physician" would be involved in the case — but I ask you to put it in.

A. I have testified in a great many murder trials in which there was poison and have made a great many examinations along those lines. We do that as part of the work in the laboratory. I am usually retained by the prosecution in those cases. I do not think I have ever testified but once, called by the defendant, in such a case.

Q. Have you read the literature on the subject of toxicology extensively?

A. Yes. I would not say extensively but I know much about the literature of toxicology.

Q. Have you received any degree of M. D.

A. Yes, sir; I am a graduate from the Medical Department of the University of Illinois, in 1894; also practiced medicine four or five years.

Mr. Sizer: Now you can read that question to him.

(The question was read by the stenographer as follows: "Is caffeine a poison in any sense, and if in any, what, and state your definition of poison.")

A. The word poison, of course, is a question of definition. There is no substance known that inherently is a poison. For example, take strychnine: We know that strychnine as used in the ordinary accepted sense is a

poison. We also know that a half a grain of strychnine has caused death. Nevertheless, when that strychnine in lesser doses is given, we know that it is an excellent remedy, and in doses of 1/60th of a grain taken two or three times per day could be given for four or five years — I have given it that long, — without producing any injurious effects, but really beneficial effects. If you reduce strychnine to one-ten thousandth of a grain, it would not have any effect whatsoever. But to give you a definition under the explanation which I have given, which is the best I can give, I would say that any substance when introduced into the body in sufficient strength and in relatively small quantities and acting chemically is capable of producing death or serious injury to health in the case of an ordinary individual in average health.

Q. Now, the question is whether under that definition caffeine is a poison.

A. It is not.

Mr. Miller: I submit that is not a definition that we are limited by. We have all kinds of people and so far as the evidence shows only a small proportion of the people are in good health. He tells us about normal people. This Pure Food and Drugs Act was to make sick people well as much as to keep well people from getting sick, and under that he is not giving a definition.

The Court: That is a matter of argument, I think, and I will overrule the exception.

BY MR. SIZER:

Q. Is there any reported case of death resulting from the use of caffeine in any quantity by human being?

A. I have not been able to find one such case in the literature.

Q. Have you examined the Allard case and the Zenetz case referred to by witnesses for the Government a few days ago?

A. I have.

Q. In what language?

A. The German language.

Q. Are you acquainted with the German language?

A. That happens to be my first language although I was born in this country.

Q. Did either of those cases show death resulting from the use of caffeine, and explain fully why they do not.

A. The original article is in the Deutcher Wiener Wochenschrift Medicine and speaks of poisoning by theocin.

Q. Which case is that you refer to?

A. The Allard case. Theocin was given in rather large doses and the patients who took theocin were sick people, they were suffering from heart disease and chronic Bright's disease, and the theocin was given for the purpose of producing a flow from the kidneys. Caffeine in one or two doses was given for a stimulant after the theocin commenced to show its effect on the body. I do not believe it is even shown in those cases that it was the theocin which produced the death, because death could just as well have been attributed to the disease, because they were gravely and seriously ill.

Q. That applies to both the Allard case and the Zenetz case?

A. The Zenetz case is rather contradictory. It reads that the woman was in good health in the first instance and afterwards says she was not feeling well, and says she went to a medicine chest and among other things there, there was caffeine citrate. There were twelve powders in the box, of which she took five, and later on took another five, but what became of the other two powders is not mentioned, and there is no indication in the first place that she took caffeine because no examination was made of what was in the box she took out from the chest where there was other medicine, and no examination of the body was made as to the caffeine; and the only evidence presented is that there was a box of citrate of caffeine in this medicine chest.

Q. I will ask you if there is any reported case of serious or permanent consequences following from the use of caffeine in any quantity.

A. I have never read of such a case. I know of one case reported where the individual took by mistake two hundred grains of citrate of caffeine, which would be equal to one hundred grains of caffeine, and from which there was a recovery.

Q. Was that the largest amount of caffeine ever taken at one time, so far as reported?

A. So far as reported—so far as I know, at least, from the literature.

Mr. Miller: Now, I move to exclude all the witness has said as to what he read of the reported case, except the Allard and the Zenetz cases which were put in evidence by us, because we were not permitted to introduce on direct examination any reported cases.

The Court: Without ruling on the reason, I think the objection is well taken.

Mr. Sizer: I am not asking for specific cases.

The Court: But the answer gave a specific case, and that I exclude.

Mr. Sizer: I submit it would be competent to show what was the largest dose.

The Court: I do not think on direct examination it is competent to show that it comes from a reported case. He may state whether caffeine is injurious or not and on Cross Examination they may bring out the other, but I sustain the motion to exclude any reference to specific cases except the witness' explanation of the Allard and the Zenetz cases referred to by the Government witnesses.

BY MR. SIZER:

Q. Are you familiar with the use and effect of caffeine as taken in coffee, tea, Coca Cola and other beverages?

A. I am.

Q. What is the effect of caffeine taken in that way on the human system?

A. It acts as a mild stimulant.

Q. Does it necessarily exhaust the reserve energy?

A. I have never found that to be true.

Q. In what way does it stimulate? Does it stimulate by drawing on the energy or by improving the quality of the energy?

Mr. Miller: That is suggestive.

The Court: The exception is well taken.

BY MR. SIZER:

Q. In what way does it act as a stimulant? I want you to explain somewhat in detail the physiological effect of caffeine as a stimulant.

A. Well, it acts on the central nervous system, locally — I am speaking about moderate doses — and on the muscles, and in that way liberates more energy. It induces under those circumstances or under the action of the stimulant, more activity and better muscular tone.

Q. Is caffeine a habit-forming substance?

A. By habit-forming we would have to differentiate because we all have habits that we are more or less subjected to, aside from the drug habit. When a person eats eggs every morning for breakfast, which I do 365 days in the year, I presume you would call that the egg habit. I like eggs better than anything else, but I have never increased the number of eggs. I eat one for breakfast every morning. Whereas, a drug habit refers to a constant desire for a certain substance, usually in increasing doses. Such a habit from a drug is usually followed by fatigue after the first stimulating effect has passed off. In that latter sense, —is caffeine a habit-forming drug — I say it is not.

Q. Have you any personal experience with it?

A. Yes, sir; I drink two or three strong cups of coffee a day. I have been doing that for at least twenty or twenty-five years.

Q. How much do you take.

A. From five to seven and a half grains every day, in my mouth.

Q. Have you had any experience in drinking CocaCola

A. I have.

Q. What is that?

A. Last October I was at the village of Jefferson, Texas. That is a very small town, and the water was not good; it was well water, and I am suspicious of well water, and the coffee at this little country tavern was very poor. There were only three drinks that could be used there, — coffee, tea and Coca Cola, and I drank Coca Cola for about three days, and I drank on an average five or six glasses a day, which took the place of water, coffee and tea.

Q. Did it produce any deleterious consequences?

Mr. Miller: We object to that. Let him tell what consequences it produced.

BY MR. SIZER:

Did it affect your nerves or body or mind?

Mr. Miller: He is certainly not a neurologist, or alienist, and I object to that.

Mr. Sizer: He may show whether it affected his health but as to whether it affected his mind he is not qualified as to that, possibly.

The Court: He may state as a physician.

BY MR. SIZER:

Q. Do you think you are competent to testify whether vour mind has been affected?

A. I do not believe it has. I think I am competent to testify to that.

Mr. Sizer: Now read that question to him.

(The question was read by the stenographer as follows: "Did it affect your nerves or body or mind?")

A. I was not aware of any effect excepting that I was stimulated and felt better and I slept just the same every evening as though I had my coffee and had gone through my daily exercise at home.

BY MR. SIZER:

Q. Have you been accustomed to drink Coca Cola since that time?

A. I take it once in a while.

Q. Have you required any habit for it?

A. No, sir; I am not so fond of sweet things.

Q. Does the qualitative effect of a drug like caffeine depend on the quantity taken? That is, does the qualitative effect vary with the quantity?

A. Yes, sir; in this way: In the first place, you could not have a qualitative effect unless there is sufficient quantity to produce it. I will illustrate that in this way: If you were standing on the ground floor here and I were to drop a log on your head it would crush your skull and kill you. If on the other hand I would grind that log up into fine powder and drop it on your head through a seive, it would have no effect on you whatsoever, and I think the same thing might be true in chemistry. For instance, I could not get qualitative test for a substance unless there was sufficient quantity to give that test.

Q. You spoke a while ago about the purin bases. I want to know whether any purin bases are poisonous in your definition of the term as you have given.

A. I would say that adenin is a purin base which would fall within that description or definition.

Q. Have you ever made any experiments on animals with the use of caffeine?

A. Yes, sir.

Q. State what those experiments were.

A. May I refer to my notes?

Q. Yes; you may refer to your notes if you desire to do so.

(The hour of adjournment having arrived, the Court thereupon adjourned until Saturday morning, March 25, 1911, at 9 o'clock A. M.)

CHATTANOOGA, TENNESSEE
SATURDAY, MARCH 25TH, 1911.
NINE O'CLOCK A. M.
Court met pursuant to adjournment.
Appearance same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED:

Mr. Miller: We were promised on yesterday a list of authorities which recommend caffeine drinks, was the language of the question put to Dr. Vaughn, and I desire to have that list furnished as early as possible and before Dr. Vaughn leaves, and look it over with a view of ascertaining whether I desire to further cross-examine the Doctor.

Mr. Hirsch: We will have it ready and present it to you, Dr. Vaughn will not leave.

J. A. WESENER
resumed the stand for further

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Now, Dr. Wesener, you were asked on yesterday about some experiments you had made on animals with respect to the use of caffeine. I wish you would go on and tell the jury about that.

A. All right. On August 2nd, 1910, two rabbits were taken for this experiment, a spotted one which was No. 3, and a fawn colored one which was No. 4. Both of these were treated alike as to the daily food given them, and they were both allowed to roam in the room at night, and in the court of the building in the daytime. They were both handled to about the same degree, and when the rabbits were given either caffeine or water in the early feeding, they were kept in the cage for four or five hours.

On the first day, the fawn-colored rabbit which I have numbered 4, received fifty milligrams of caffeine in solution in three cubic centimeters of warm water. The water solution was dismissed, and the rabbits were fed by the use of a small medicine dropper. After feeding the animals, no unusual symptoms were apparent, except that the ears of the rabbits seemed to be somewhat warmer than usual. On the second day the rabbits were fed one hundred milligrams dissolved in about six cubic centimeters of warm water. The animals showed no unusual symptoms but urinated once about the end of about two hours. The control rabbit did not urinate during the period it was kept in the cage.

Q. That was the spotted rabbit?

A. Yes, sir; and which I have numbered 3.

Q. And in speaking of the control rabbit, you mean the one that was not given caffeine?

A. Yes, sir; on the third day the rabbits were fed in a similar manner, one receiving caffeine, and the other the same amount of water. There were no unusual symptoms. When fed carrots, both animals went to eating vigorously. Rabbit No. 4 was fed one hundred milligrams of caffeine daily, except on Sunday, until the end of the experiment, and no unusual symptoms were at any time noticeable.

On September 9, the white rabbit, which I numbered 5, was taken for experiment, and it weighed at this time 2,050 grams. On the first day this rabbit was fed fifty milligrams of caffeine.

Q. Could you state those quantities in grains or fractions of grains, for instance, say in that rabbit, what was that?

A. That would be about two and two-tenths pounds —

Q. The weight of the rabbit?

A. Yes, sir; that would be about two and two-tenths pounds for that rabbit, and the caffeine given on the first day, fifty milligrams, would be seven and three-quarters grains.

Q. Seven and three-quarters grains?

A. I will correct that — no, I had my decimal point in the wrong place. That is seven and three-quarters grains — the animal was kept in the cage for about four hours and urinated once during this period. I wish to correct that, that is seventy-seven hundredths of a grain, a little over three-quarters of a grain. It is very difficult, at least I have a great deal of trouble in converting the metric system into the English system.

The Court: What portion of a grain is a milligram?

The Witness: One milligram is one-thousandth part of fifteen and five-tenths grains, that is .001 times 15.5, and fifty milligrams naturally would be fifty times that, and so on. The animal was kept in the cage for about four hours and urinated once during this period.

On the second day, one hundred milligrams of caffeine were fed.

BY MR. SIZER:

Q. That would be equivalent to about how much caffeine?

A. A little over a grain and a half. There was apparently a slight disturbance of breathing, but no other noticeable symptoms. On the third day, being Sunday, no caffeine was given.

On the fourth day, one hundred milligrams were given without any noticeable symptoms.

On each of the following four days, one hundred and fifty milligrams were given to the rabbit without noticeable symptoms.

On September 17, two hundred milligrams were given, and on September 19, two hundred milligrams were given, That would be equivalent to about three grains, or a little more.

Beginning September 20, two hundred and fifty milligrams were fed this animal daily, except on Sunday, for a peroid of twenty-one days, or until the end of the experiment.

The caffeine animals Nos. 4 and 5 that were receiving the daily doses of caffeine, showed no symptoms except those already noted, after the administration of the first few doses. No urine after feeding or no hyper-sensitiveness was detected.

Rabbit No. 4, showed more energy than did the control rabbit No. 3.

No. 5, a fully matured animal at the beginning of the experiment, and retained its vigor throughout the time it was fed caffeine.

When the animals were slaughtered, all were in a thoroughly healthy condition.

On October 14, all the animals were killed by striking on the head.

Post mortem examinations were conducted by Dr. Ludwig Hektoen of Chicago.

Q. Was that in your presence?

A. Yes, sir; it was performed in my presence, and the post mortem examination showed nothing abnormal.

Q. Now, what conclusion do you draw from ——

A. (Interrupting.) I had not quite finished, Mr. Sizer.

Q. I beg your pardon, go ahead.

A. Immediately after these animals had been slaughtered, sections had been taken by Dr. Hektoen for miscroscopic examination, the skin was removed from each animal and the alimentary canal dissected, that is the stomach and intestines and esophagus, and as much urine as could be collected from the bladder of each animal carefully saved for examination for caffeine. The liver of each animal was weighed by itself and put aside. The carcasses and organs, including the alimentary tract and the liver, together with as much blood as could be collected, were taken and thoroughly minced by passing through a sausage machine several times so that all parts were thoroughly minced, the liver minced separately and divided into portions, one for the extraction of caffeine and the other for the extraction of xanthine.

On October 3, 1910, another rabbit was fed caffeine. This was No. 6. The feeding of caffeine was begun on October 3, 1910, and continued to February 6, 1911. One hundred milligrams of caffeine was given daily excepting on Sundays.

The weight of the animal at the time was 1,045 grams.

Q. About how many pounds?

A. That would be equal to about two and two-tenths pounds weight. At the end of the experiment the weight was 2,540 grams. That would be equal to about four and a half pounds, roughly speaking.

Q. So that the increase in weight was about how much during the experiment?

A. About 145 per cent. The last dose given this animal was at 1:15 P. M., and the animal was killed at 3:40.

In the other two rabbits, Nos. 4 and 5, the last dose of caffeine given in these respective animals was about 24 hours before they were killed.

Post mortem examinations were made by Dr. Hektoen, and all parts were found to be normal. I was present at that examination.

The animal was skinned and the carcass ground up with a sausage machine, and treated in the same manner as rabbits 4 and 5. The liver was also treated separately In the caffeine-fed animals, 4, 5 and 6, no caffeine was found in the liver or in the carcass or in the urine of any one of these animals.

Q. What would that fact indicate, Doctor, as to the caffeine having been broken up into other substances in the body?

A. Well, it shows that the caffeine has been destroyed, that is, it is no longer caffeine or could be identified as caffeine.

The summary of Nos. 3, 4 and 5 rabbits—the weight of rabbit No. 3 was 1,625 grams at the beginning of the experiment; and of No. 4, 2,270 grams, of No. 5, 2,255 grams —please strike that out, I looked at the wrong table, if I may be permitted to do that—I had the wrong table.

The weight of rabbits 3, 4 and 5, at the beginning of the experiment was as follows:

No. 3, 1,190 grams.

No. 4, 1,480 grams.

No. 5, 2,050 grams.

The weight at the end of the experiment was for:

No. 3, 1,825 grams.

No. 4, 2,270 grams.

No. 5, 2,255 grams.

The gain in grams was for No. 3, 635; for No. 4, 790; and for No. 5, 205.

The per cent gained on the original weight for No. 3, was 53.3 per cent; for No. 4, 53.3 per cent, and for No. 5, 10. per cent.

No. 5, I will state, was a fuliy matured animal when the experiment was begun.

The caffeine fed to No. 4 on the first day was 50 milligrams and then was given for sixty-two days 100 milligrams of caffeine daily.

Q. Or, in other words, about three and a half—

The Court: No, one and a half.

The Witness: A little more than one and a half grams daily, and this was given for sixty-to days, and then three-quarters of a grain for the first day—

BY MR. SIZER.

Q. That would be equivalent to about what amount for the average man, weight for weight?

A. Well, the amount given here daily would be equivalent to a man weighing 170 pounds, 56 grains in the dose given to the rabbit No. 4, and the dose given to rabbit No. 5 would be equivalent to 122 grains to a man weighing 150 pounds.

Now on rabbit No. 6, the weight at the beginning of this experiment was 1,045 grams; at the end it was 2,540 grams gain in grams as 1,495 grams, per cent gained on original weight 143. Days fed 100 milligrams of caffeine 106; and total grams of caffeine fed as 10.6 grams. The amount of caffeine given this animal daily would be equivalent to 43.08 grains for a man weighing 150 pounds. The caffeine as I have already stated, as not found present in their carcasses. The purin basis in the caffeine-fed animals was somewhat less than what was found in the liver of the control animals. The purin basis or xanthine basis were found much increased in the carcasses of all the ceffeine-fed animals as compered with the control.

Q. Now, Doctor, in view of the respective conditions of life and diet of rabbits and human beings, what would you say as to the respective tolerance of rabbits and human beings for caffeine, or, in other words, on which would caffeine likely have the greater effect.

A. Well, I would have to answer your question in this way. In the first place, I would say that the rabbits live on food that is almost free of purin basis or xanthine basis, whereas man in his food continually and always has taken xanthine bases and in that way, man has quite a tolerance to such products, whereas a rabbit has not acquired a tolerance in the same manner or degree.

Q. Now, as a result of that tolerance, Doctor, right there, would the results of that be that the animal which had acquired a tolerance for a substance could take it with less effect than an animal which had not acquired that tolerance?

A. That would be true in most instances. That would hold true in most instances. But I would furthur state that in answer to your previous question, that a rabbit has the power to change caffeine—a rabbit's economy has the power to change caffeine rapidly and quickly into less methylated products, and possibly also xanthine—simple xanthine products, and this same process also takes place in the economy of man. These rabbits were given large doses, equivalent to fifty grain doses to a man weighing 150 pounds, and I know in the literature where such doses of caffeine have been taken by man, and I also know where statements are made in the literature and that 45 grains can be taken daily without causing injurious effects. That

being the case, I would say that the rabbit has about the same tolerance to caffeine that man has, based on that hypothesis and deduction.

Mr. Miller: I move to strike out that portion of the answer that deals with literature and supports his statement, because it is not proper matter for him to state in chief.

The Court: The exception is sustained, and the answer as to the literature contains, is stricken out.

BY MR. SIZER:

Q. I will ask you this question based on the literature you have read on the subject, what is your opinion as an expert as to the amount of caffeine a human being can take without deleterious or serious results, without stating, you understand, what the literature says, I want you to express your opinion as an expert from the literature and from your personal experience as well.

A. Well, from my personal experience and from the literature, I would say that an adult of average weight could take from twenty to forty-five grains of caffeine per day—I would not say they should take that every day, but I think they could take that without causing any injurious effects.

Q. Did you hear the testimony of the witnesses on behalf of the Government as to the experiments made by them on animals, Doctor?

A. I did.

Q. I will get you to state whether or not these experiments indicated anything of value with respect to the tolerance of the animals experimented on by caffeine, and give your reasons for any opinion you may express.

Mr. Miller: I submit that he cannot state anything as to the value of something, he should not pass on that, I object to the question in the form in which it is put.

The Court: In what form, I didn't exactly understand?

Mr. Miller: He is asked whether or not these experiments are of any value as a part of that question, and I object to the question in the form in which it is put, because it calls for his conclusion as to a matter which the jury must ultimately determine, and it introduces into the question a statement as to the value of them, and I object to the form of question as it is put.

Mr. Sizer: The question whether experiments are of value or not is necessarily one of expert opinion and I am asking him to give reasons for any opinion he would express as to the value of the experiments made by the witnesses on behalf of the Government.

Mr. Miller: He can testify what he considers the proper method, but to say whether or not any method is of any value or not is not within the province of any witness and is a question purely for the jury.

The Court: I think the witness may be asked as an expert whether a given method of experimentation is calculated to produce accurate results, and that may be put in the form of a hypothetical question or may be based on the testimony that the witness has heard in the presence of the jury as to particular experiments. The question may be so asked and when so asked the exception is overruled.

Mr. Sizer: Instead of putting it in the form of a hypothetical question ——

The Court: The testimony as to the particular experiments will be excluded. Whether the method of conducting that experiment as testified to by given witnesses is one that produces results of scientific value ——

BY MR. SIZER:

Q. I will ask you whether or not then the experiments testified to by the witnesses on behalf of the Government namely, Doctor Morgan, Doctor Salant and perhaps some others, add value in determining the effect of caffeine on the animals experimented on, and if you express an opinion on that subject state the reason for it.

Mr. Miller: I object to the form of that question. We can then in turn put out witnesses back on the stand to prove that in their opinion his experiment was valueless

The Court: You can do that and they can give their reasons for it.

Mr. Miller: All right, but this further point, this witness has not qualified as a pharmacologist and until he does so he is not qualified to express an opinion.

The Court: I think the witness is qualified to give an opinion on this.

Mr. Miller: He does not state, I understand, that he has made any study of pharmacology.

The Court: I think he is qualified to the extent of expressing an opinion of the value of the experiments on rabbits. I do not know whether that is pharmacology or general medicine, but he is sufficiently qualified to express an opinion on that.

BY MR. SIZER:

Q. Proceed.

A. The experiments made by Doctor Morgan were that he fed rabbits Coca Cola syrup and introduced the syrup into the stomach by means of a tube, and those should be

thrown out for two reasons ——

Mr. Miller: I object to that. It strikes me that that needs no further statement but just to suggest it.

The Court: He does not really intend to rule on the evidence but he is just expressing his opinion in an intensified form. Doctor, just express your opinion in scientific terms.

Mr. Miller: The fact is, I suppose, he thinks all of our testimony should be thrown out.

Mr. Sizer: Keep from offending Mr. Miller or any of his witnesses and put your language in as mild a form as possible.

A. In the first place, the rabbits are very sensitive to tube feeding. I have made quite a few experiments in that regard and know it is an easy matter to kill a rabbit with a tube. And this has also been found true by other experiments. Secondly, over half an ounce of sugar put every day into the stomach of a rabbit is certainly not proper food for a rabbit, and if the experiment was conducted for the purpose of trying to determine whether the caffeine in the Coca-Cola syrup was poisonous, then the presence of this sugar vitiated that experiment as to the caffeine toxicity.

The experiments made by Doctor Salant, in so far as they showed the destruction of the caffeine, are in accordance with my experiments, but the amount of caffeine for these rabbits when trying to arrive at what is the lethal dose, seems to me to be of no value in the experiments we have before us; that is, is caffeine in rather large quantities poisonous or deleterious. And I think Doctor Salant has shown in his experiments that within reasonable limits the caffeine has no effect on the animal when fed by the mouth, and I think that is the only proper way to take such experiments. This caffeine and all caffeine taken for a beverage is taken by the mouth and not injected subcutaneously or put into the blood direct.

Q. I believe you say after these animals were slaughtered, their remains were turned over to Doctor Hekteon for miscroscopical examination.

A. Yes, sir; he made the post mortem himself and took the specimens with him to make sections from them.

Q. Further with reference to the experiments you have been testifying about which were testified to by the witnesses on behalf of the Government, is it necessary to the value of the experiment that you should have a control animal going along with the animal on which the experiment is performed?

A. Yes, sir; it is.

Q. Why is that?

A. For this reason: The control animal and the animals which are experimented on should be both handled about to the same extent; that is, when you fed one animal the drug or the material which you are experimenting on, you should feed water to the other animal; that is, if it is given in a liquid form, the control animal should be given water and handled about in the same degree and both fed about the same amount and handled similarly.

Q. As to these experiments in which Merchandise No. 5 was given to some animals, what would be the effect on a rabbit of the amount of alcohol contained in Merchandise No. 5?

A. Well, it would have a serious — a bad effect, 16 to 18 per cent alcohol given to a rabbit, an ounce is equal to about a glass of pretty strong wine and that to my mind would not be proper food to give a rabbit.

Q. Have you performed any experiments on human beings to determine the physiological effect of caffeine?

A. Yes, sir.

Q. State them.

A. May I use my notes?

Q. Refer to your notes.

A. The object of this experiment was to show that the body of a human has a power to split off the methyl groups in the caffeine. The urine was collected for three days before the administration of the caffeine. A healthy individual was used, a young man weighing about 140 pounds, and he works in my laboratory. The urine was collected and measured and analyzed for the amount of uric acid and the total xanthine bases. This was carried on for the three days. The urine for 24 hours was collected. The same procedure was followed for collecting and analyzing the urine during the caffeine period. The record was kept of the data, during all those days.

At the end of the experiment the analysis of the urine during the drug period showed an absence of caffeine. The purin or xanthine bases during the caffeine period were very much increased, I would say 300 per cent. over the xanthine during the normal period.

Q. Would you find that effect from the taking of large quantities of any food containing xanthine-producing substances?

A. The xanthine would be very materially increased on a diet rich in xanthine products, or nuclein products, which of course, are decomposed into xanthine.

Now, I would like to refer to the amount of caffeine fed

to this individual.

The first day, he took three grains of caffeine in his coffee and tea. The second day three grains of caffeine in his coffee and tea.

The Court: Natural constituents?

The Witness: Yes, sir; just the natural constituents. We analyzed the coffee for the caffeine content.

The same was true of the third day, the same amount. Then, on the fourth day, when he commenced to take the caffeine in addition to what was usually found in the coffee and tea, the total amount of caffeine was 11.8 grains.

BY MR. SIZER:

Q. That was in addition to what he got in the tea and coffee?

A. No, sir; this was the total. On the fifth day, 13.8 grains, and on the sixth day, 13.00 grains of caffeine.

Q. Was any injurious effect produced on the health of that individual so far as you observed?

A. None that I was able to observe.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You are the same Doctor J. A. Wesener who wrote a letter to the Coca-Cola Company dated Chicago, April 15, 1907, stating the result of analysis made by you as to the contents of the Coca Cola syrup — a gallon of Coca Cola syrup?

A. I would have to see what you have there before I could answer that question.

(Witness examines a periodical handed him.)

A. (Continuing.) I am the same man who made this analysis and reported it to The Coca Cola Company — the result of the examination, but they had no right to publish that analysis and I wrote them so after they published it.

Q. That was published with the Coca-Cola advertisement?

A. It was.

Q. That is a copy of your letter?

A. I presume it is. I have not the letter here to compare that advertisement with my letter.

Q. Do you now state or not that that is a truthful statement as appears in the advertisement?

A. I would have to look at it again.

The Court: Do you offer that in contradiction of anything, Mr. Miller?

Mr. Miller: I offer it for a material purpose, as I shall presently show, and in contradiction of some things that

the witness has said.

A. I think that is correct.

BY MR. MILLER:

Q. That was the first analysis that was made by you of Coca Cola about which you spoke on yesterday?

A. That was made April 15, 1907, as I recollect it.

Q. That is the first one of the number?

A. That is the first one as I remember.

Q. What was the analysis through which you put that Coca Cola syrup?

A. I determined the amount of caffeine and examined the syrup for cocaine and for the percentage of alcohol.

Q. I asked what the test was; you are a chemist and I want to know what the test was.

A. Your question is rather indefinite. I would have to know more specifically.

Q. Your method for determining it, and you can give it like Doctor Fuller did.

A. The caffeine was determined as follows:

A certain quantity was taken and diluted with three or four times its volume of water, slightly alcoholized and shaken up with chloroform until the chloroform removed no more caffeine. This chloroform extract was evaporated and the crystals which were obtained were weighed. They were pure crystals, virtually pure, and that weight was caffeine.

Q. By "virtually pure" you do not mean absolutely pure?

A. I would say that it was probably 99.7 per cent pure. That is dependent on the melting point of caffeine which is wide — quite wide.

Q. What was the alcoholic test?

A. A weighed quantity of the syrup was taken and diluted with a certain volume of water and then distilled. The specific gravity of the distillate was taken and from that the amount of alcohol computed.

Q. Did you do this experiment yourself?

A. I think I did. If not, I was there when those experiments were being done. It is quite a long time ago.

Q. You refer to subsequent analysis of Coca Cola syrup. Were they conducted in the same way?

A. The caffeine was determined in about the same way, with this addition, that after I got the weight of the caffeine crystals I proved that those crystals were caffeine by redissolving the crystals and adding ammoniacal silver nitrate which would throw out the theobromine and some of the other dimethyl, monomethyl and simple xanthine